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Inference and Anticipation in Simultaneous Interpreting

Ghelly V. Chernov

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A probability-prediction model
By Ghelly V. Chernov
Edited with a critical foreword by Robin Setton and Adelina Hild

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Editors' critical foreword

Robin Setton and Adelina Hild

Ghelly Vassilievich Chernov (1929–2000) belonged to the first generation of post-war Russian conference interpreters servicing Soviet delegations at the United Nations through the Krushchev era, the height of the cold war, and decolonisation, and was Head of the Russian interpretation unit at the UN in New York from 1976 to 1982. In Russia as elsewhere, senior interpreters trained the next generation, a calling which fit neatly with a parallel academic career. With two doctorates (Translation in 1955 and Interpretation Theory in 1980), Chernov occupied successive posts, first at the Maurice Thorez Institute (later Moscow State Linguistic University) as Assistant Professor of English Translation and Interpretation, in 1967, then Chair of Interpretation from 1970, and later, from 1991, as President of the Moscow International Interpreting School (MIIS) before returning to MSLU as Professor of Interpretation Theory, History, and Practice from 1995 until his untimely death in 2000.

Chernov's main contribution to interpreting studies has traditionally been seen in his highlighting of redundancy as a key factor in SI comprehension and his emphasis on the psychological process of 'probability' anticipation (forward inferencing) as the central cognitive process making SI possible. His standing in the discipline and the originality of his work amply justify publication of his seminal contribution in English at this time. His decision to publish this work in English (as explained in the author's foreword) was motivated partly by a concern to reach a wider readership and partly by a need to express affinities with some recent work in interpreting studies and in pragmatics, specifically the post-Gricean school of Relevance theory.

Like a few other practitioners and trainers in Western Europe in the 1960s, Chernov was intensely curious about simultaneous interpreting, and had as many exciting intuitions and ideas as the next man or woman in the booth or trainer of conference interpreters. He did, however, take the step from speculation to empiricism, and looked for backing for his ideas in

data gleaned from live interpreted events as well as laboratory experiments and the classroom. He obtained permission from his supervisors at the UN to tape speeches (in both the General Assembly and Security Council, as well as other agencies like the development forum UNCTAD), and their interpretation into different languages on parallel tracks. In particular, this valuable raw data allowed Chernov to compare the authentic production with the transcripts as edited for publication in the official UN record.[1] The detailed measurements offered in his synchronised graphic representations of SI samples as evidence for his probability anticipation model were achieved using a laboratory installation of his own design (on which he took out a patent).

But as some future corpus analysts were also to recognise, extracting information from such raw authentic transcripts also called for some theoretical descriptive apparatus. Chernov found his basic model of communication in Activity Theory, a philosophical and cross-disciplinary framework proposed by a group of Russian psychologists for the study of human behaviour and development processes. Drawing on Anokhin's research in neuropsychology and the writings of authors like Vygotsky and Leont'ev[2] on language and thought, Chernov conceptualised SI as a complex goal-oriented cognitive activity which, like other forms of human behaviour, is dependent on perceptual attunement to significant changes in the external and internal environment and geared to a purposeful response – but in this case is performed in such extreme cognitive conditions that it must crucially depend on a minimum level of redundancy in the input, plus some additional knowledge, to enable anticipation and thus a more or less continuous synthesis of the verbal output.

To apply this framework to his data, Chernov drew further on accounts of language and discourse in the work of Russian linguists like Zhinkin and Arutyunova, and on the functionalist theories of the Prague school as represented by Vilem Mathesius and contemporary successors like Wallace Chafe. The theory of attentional and perceptual attunement to changes in information from the environment as the main mechanism of comprehension and action seemed particularly compatible, when applied to language comprehension, with functional sentence analysis, which identifies peaks and troughs of information density in discourse in the alternation between its relatively recapitulative component, the 'theme', and the 'rheme' which carries relatively 'new' information. This recourse to linguistic theory, relatively rare in interpreting research elsewhere at the time, reflects Chernov's own linguistics background as well as his fruitful and longstanding collaboration with psycholinguists, in particular Irina Zimnyaya (see bibliography).

Chernov also kept track of work in Western Europe and the United States in general linguistics, but also in psycholinguistics, which he identifies in his opening chapter as the primary discipline for the study of interpreting, a form of translation which he insists can only be understood as a process. In Chapter 2 he characterises simultaneous interpretation as a unique human activity practiced under 'extreme [cognitive processing] conditions' and constrained by short-term memory capacity.

In the next three chapters (3–5) Chernov sets out to show how redundancy arises at different levels of discourse, on the basis of a multilevel model of semantic and pragmatic structure drawing mainly on compositional semantics, Chafe's work on semantic agreement, and Prague school information structure analysis (theme and rheme). After describing the sources of 'objective' redundancy at the linguistic levels, Chernov explains how additional 'subjective' redundancy is achieved through familiarity with various parameters of the discourse situation (speaker, sociopragmatic relationships, etc.), thus enabling inferencing sufficient for SI in the conditions described earlier, based on the 'central mechanism of SI', which he calls 'message development probability anticipation'.

Chapters 6 and 7 explain how in verbal communication, this anticipation mechanism is not 'probabilistic' in a mathematical sense but depends on cumulative redundancy – and therefore predictability – achieved by a combination of linguistic and cognitive inferences at different levels of the discourse (referential, factive, deictic, evaluative, pragmatic), as well as on a (normally) fairly regular cyclical alternation in the semantic density of the unfolding discourse. Chernov shows how the simultaneous interpreter can exploit this pattern by focusing attention on the critical rheme while using the potential for compression in the relatively redundant theme (Chapters 7 and 8). He also illustrates how redundancy may be distributed differently according to speech genre with examples of the dominant and highly redundant 'evaluative' component in political speeches.

This naturally moves the analysis towards the production side of the process. Chapter 9 offers an account of the rhythm of interpreters' production in terms of the completeness or fragmentation of the 'internal programme' which is synthesised as the basis for successive utterances. Here Chernov addresses the difficult and controversial question of syntax in SI, developing an interesting contrast between formal and 'communicative' word order. Finally, in Chapter 10, he returns to his main theoretical source to show how the various mechanisms described for SI may be seen as instantiating the processes postulated in Anokhin's general model of purposeful activity.

From the discussion of situational factors in Chapter 5 onwards, Chernov illustrates his thesis with examples from his corpus of authentic interpretation at the UN and his own experiments with students, of which the most famous, focusing on anticipation, is presented in detail in Chapter 11.

The probability prediction model and Chernov's contribution to interpreting studies: A critical evaluation

One of the major points of interest in publishing Chernov today lies in the discovery of how interpreting research was shaped in the Soviet Union at a time of limited contact between research communities. But Chernov has acquired his own special status in interpretation studies not only because of the 'exotic' appeal of a model rooted in philosophical and psychological theories which were until recently virtually unknown in the West, but also because he was one of the field's rare methodological all-rounders, backing up theorising and the analysis of natural corpora with experimentation.

The theoretical framework: Eclecticism and interdisciplinarity

All SI researchers realise that some degree of interdisciplinarity is imposed by the object of research, while differing often quite sharply on the relevance or applicability of neighbouring disciplines and their methods. Research on interpreting is now probably less eclectic, and much less holistic and theoretically ambitious than in Chernov's day. The fault-lines between distinct paradigms to which he alludes in his preface are still visible, but have shifted and to some extent blurred. Those committed to the methods of experimental psycholinguistics continue to hone their methodology in the hope of improving the control of variables while making little use of authentic corpora, while an increasing number of researchers are analysing larger corpora, applying discourse-analytic techniques but also, increasingly, conducting quantitative analyses inspired by advances in corpus linguistics. Some researchers have also attempted to use real SI corpora – necessarily smaller in this case – to study local and cognitive processes like ear-voice span, pausing or the effect of structurally 'asymmetric' source and target languages (e.g. Setton 1999). Against this background, Chernov's corpus remains more substantial and varied than most, and he is certainly among the most theoretically eclectic of SI researchers.

At first sight, the theoretical panoply which Chernov unfurls will strike contemporary 'mainstream' readers as bewildering and over-abundant. Cer-

tainly one feels that some theoretical sources, like speech-act theory, have been grafted on late in the day or else, however enthusiastically invoked – as in the case of Relevance Theory – have not had time to connect with, integrate or enhance the older framework. Sometimes the transposition and/or translation of the terminology borrowed from these schools is confusing. As far as the Russian theorists are concerned (both psychology and linguistics), most readers will be dependent on Chernov's translations, since little is available in print in English.

Some obscurity remains in the underlying cognitive framework represented by Activity theory and focussing on Anokhin's work on neuropsychology, particularly for the more abstract conceptual levels. We may hope that the potential contribution of this tradition will be better recognised as increasing numbers of researchers in various centres become involved in translating and disseminating the Russian-language literature on Activity Theory. These include the Centre for Activity Theory and Developmental Work Research at the University of Helsinki, under its current director Y. Engestroem, who continues to develop the theory, methods and practice of what come to be known as Cultural-Historical Activity theory; the Centre for Socio-cultural and Activity Theory Research at the University of Birmingham (UK); the Laboratory of Human Cognition at the University of California, San Diego; and the Departments of Psychology and Computer Science of the University of Aarhus in Denmark (Bedny et al. 1997; Engestroem et al. 1999; Nardi 1996; Kaptelinin et al. 1995).

The references to authors such as Pavlov may suggest a behaviourist lineage for Activity Theory, but the researchers developing the theory today point out that AT is in fact little related to behaviourism and is more compatible with other frameworks of modern cognitive science. AT should be seen as a holistic framework which both anticipates and moves beyond contemporary cybernetic and information-processing approaches to cognitive psychology. Proceeding from the fundamental principle of the unity of consciousness and activity, the AT framework addresses both phylogenesis and ontogenesis. The latter is conceived of as an active appropriation by the human subject in the course of interpersonal activity (understood in terms of both mental and motor actions) of the elements of historically developed human culture, principally language but also including artifacts, rules, customs and norms.

The linguistics is somewhat more familiar, though also drawing chiefly on Russian authors like Zhinkin and Arutyunova. Again, however, in borrowing from the Prague school, Chernov does not use the key terms and concepts which have left their mark in Western linguistics (information structure, func-

tional sentence perspective). Terms like 'actual parsing' are not familiar at first sight to a Western reader, either because of the roundabout translation route such terms may have followed from Czech via Russian, or simply because different memes had stuck to the West and East of Prague. Chernov also uses 'pragmatic' in the restricted and now dated sense of 'sociopragmatic', which is at odds with the modern (and relevance-theoretic) reinterpretation of pragmatics as covering the whole of the inferential input to communication. The account in Chapter 4 reflects the pre-RT primacy given to semantics, with the 'pragmatic framework' subsumed (albeit as 'the most global component') in the 'semantic structure of the discourse' viewed as the 'invariant' to be conveyed intact in the target text. In Relevance Theory, in contrast, pragmatic inference from contexts reaches into and co-determines semantic interpretation, and communication is necessarily imperfect.

Methodology

Chernov's research has always favoured an empirical approach, manifested in his use of authentic corpus material and in his experimental work, which he began as early as the 1970s, ahead of most. The present book, more than any of his previous publications in English, confirms his affinity for corpus-based research and his flair in recording conference discourse with theoretical potential. In particular, his data includes parallel multilingual as well as bilingual corpora which lend themselves to more complex exploration of the type needed to support comprehensive cross-language generalisations.

Chernov's experimental work in collaboration with Zimnyaya in support of the centrality of predictive inferencing has entered the canon (Pöchhacker & Shlesinger 2002). The present volume provides perhaps the most detailed description of the experiment available in English, although the format of the experimental report adopted here is curtailed as to the exact nature of the materials, subjects and experimental set-up. Here Chernov has apparently mixed elements from academic discourse genres with the more familiar international conference texts (as well as inserting the test items). This heterogeneity of the experimental material could have led to interesting observations concerning text-type effects on SI processing, but Chernov does not explore this (with the notable exception of the interpretation of metaphors in poetic discourse).

The main aim of the experiment is to provide support for the existence of message probability anticipation, which Chernov regards as the cornerstone of SI cognition and which is critically dependent on message redundancy. In evaluating Chernov's chosen method for exploring this hypothesis, we are at

the heart of the methodological controversy in interpreting studies. Some interpreting researchers – perhaps feeling the pressure from an impatient and sceptical profession for clear and applicable findings, perhaps also doubting that the rigorous controlled-variable and statistical methodology which is the norm in mainstream psycholinguistics can succeed in the study of a phenomenon as complex as SI – have preferred an 'illustrative' style relying for its persuasive power on the weight of circumstantial evidence and the eloquence of the argument. This method has been most famously applied in support of a far more comprehensive and ambitious 'hypothesis' than Chernov's, i.e. the whole 'theory of sense' package defended by the Paris School (e.g. Seleskovitch 1975; Lederer 1981). Others have insisted on observing the established methodological and epistemological norms of experimental psycholinguistics, despite a harvest of findings which have hitherto been more modest in quantity and scope, and necessarily less spectacular in their applicability.

Certainly, testing a hypothesis like Chernov's to meet the control standards of this paradigm would be daunting for a cognitive psychologist aware of the inherently complicated and subtle nature of the higher-level cognitive processes. Chernov confines himself to an exploratory investigation without attempting rigorous statistically-based hypothesis-testing. His preferred approach to inferring conclusions from both experimental and authentic corpora is to combine quantitative data (measures of accuracy and ear-voice span) with an analysis of individual examples. Thus Chernov moves beyond purely speculative or phenomenological scholarship, but in his search for enhanced validity shows some tendency to over-interpret individual corpus or experimental examples.

The experimental results highlight the importance of 'semantic redundancy' in interpreting by showing that phrases and sentences which are semantically incongruous albeit syntactically well-formed are problematic for the interpreter, in other words, that semantic clash beyond a certain degree (cf. Cruse 2000) adversely affects SI performance.

Anticipation is also illustrated in the second part of the experiment, in which unexpected words or phrases were embedded in highly contextually or inter-textually redundant stretches of discourse. By repeating a phrase previously encountered in the text, or using a famous quotation with minimal changes (sometimes a few phonemes), Chernov elicited error responses from which he inferred that differences tend to be ignored if they contradict an expectation based on a previous occurrence or background knowledge. This stage of the experiment raises some questions about possible confounding of variables, which can be illustrated in a minimal difference pair taken from the

experimental material: the phrase *He always took me for granite* is inserted in the input discourse not long after an occurrence of *He always took me for granted*. It could be objected that the performance decrements on the unexpected string could equally plausibly be attributed to: (a) violation of context-generated anticipation (Chernov's interpretation); (b) a simple 'slip-of-the-ear' triggered by the minimum phonetic difference between *granite* and *granted*;[3] or (c) difficulties in processing an unusual figurative expression.

This example alone illustrates some of the difficulties in providing empirical support for Chernov's idea of message probability anticipation. The more fundamental problem remains the rather general nature of the model, which in certain areas remains underspecified. Most open to scrutiny is the 'probabilistic' nature of the process, which is relatively undeveloped and left largely to the readers' imagination. The term seems somewhat strange given that a good part of the redundancy necessary to do SI is 'subjective', i.e. achieved by the interpreter through deliberate preparation and familiarity with the topic and situation. As Chernov recognises (Chapter 6, §28), and certainly our knowledge of 30 years of discourse inference research clearly shows, comprehender variables affect discourse processing to the extent of effectively subverting the possibility of applying a mathematically-based model of probability to text comprehension. The less rigid, but more complex concept of multilevel contextual probability, however, necessarily makes Chernov's model more resistant to experimental verification, reflecting once again the tension between plausibility and testability which is probably the single greatest challenge to research on interpreting and no doubt other complex human behaviours.

Chernov's experimental work is presented in many ways as an exploratory pilot study designed to generate rather than confirm hypotheses, but it probably drew attention more than any other published work to the significance of anticipation in SI processing, and this is the part of the model which has enjoyed the greatest theoretical recognition. It reflects state-of-the-art ideas in language processing research at the time when the research project described in the book was designed and completed. Since then, inference research has made enormous strides in identifying different types of inferences and the effects of message and hearer characteristics on inference generation (Singer 1990; McKoon & Radcliff 1992; Van den Broek et al. 1993; Graesser et al. 1994). Future attempts to develop the model could draw on the techniques developed in this field and bring out the specific features of anticipation in SI in comparison with general inference processes. Inference methodology has also grappled with and offered solutions – such as more elaborate statistical models based

on analysis of variance – to the problem of the unwanted impact of extraneous variables, which remain unresolved in the original experiment.

Convergences with other models

Chernov's system may therefore appear at first to the (Western) reader as a confusing pointillist painting, but if we peer through and adjust the focus a very rich structure appears. Most if not all of what has exercised Western researchers and practitioners is there: the problems of information density and cognitive overload, the possibility of compression, the fascinating phenomenon of anticipation, the role of situational context, and so on. In Chernov, these observations crystallise into a different and original focus, in which anticipation and redundancy are elevated to key principles.

The idea of cumulative development and multi-level cumulative analysis of discourse is reflected in contemporary theories of discourse comprehension, as is the metaphor of comprehension as structure-building, and both have been widely adopted in interpreting theory (e.g Mackintosh's [1985] application of Kintsch and Van Dijk's discourse comprehension theory; Ivanova's experimental investigation [1999] of the mental structures built during SI; Setton's [1998, 1999] use of discourse models). Another modern feature is the identification of persuasion as a more primary function of oral discourse than 'information', which only serves it – especially in political speeches, as highlighted in recent work on EU Parliamentary discourse (e.g. Vuorikoski 2004).

The originality of the sources and their application to explaining SI is perhaps the work's main strength: the overall scheme is internally coherent and convincing and certainly, in terms of the supporting and corroborative data adduced for the theory, both analytic and experimental, it compares well with the other general models which have been advanced. Despite the lack of a single comprehensive diagram (a conceit which many another eminent modeller has understandably eschewed) a Chernov 'process model' definitely emerges, with several potentially quantifiable factors and components: at any point in an incoming discourse, there is a certain degree of 'redundancy' (in a broad sense), itself the sum of objective and subjective components given respectively by (specific) linguistic and contextual factors, and which allow more or less inferencing at different (specified) levels, allowing accordingly more or less anticipation and synthesis and more or less fluent and accurate production. The application of functional sentence perspective is by no means superficial, addressing anomalies such as the 'monorheme' and word order

in terms of communicative load. The attempt to integrate the theory into a processing model is certainly original.

However, although Chernov's model is rooted in a neurophysiological theory (Anokhin's Theory of the Functional System), the cognitive framework of the model remains fragmented and underspecified. Some central ideas from cognitive psychology – levels of processing, interactive processing, capacity constraints – surface in the model; but some major research findings and theories of the 1980s and 1990s in psycholinguistics, and in particular discourse processing, have escaped Chernov's attention – most notably, Rayner and Polatsek (1989), Just and Carpenter (1992), Ericsson and Kintsch (1995) on working memory in text comprehension, and the landmark model of speech production provided in Levelt (1989) (cf. also Bock & Levelt 1994). Some of this work could provide the framework needed to further refine the processing aspect of Chernov's anticipation model.

A notable lacuna in this respect is working memory and attention theory, in spite of the frequency with which these concepts are employed to account for performance failures, for instance. Chernov's implicit model of attention allocation must be inferred from his assumptions about production formulated in terms of the 'whole' vs. 'broken' internal programmes which the interpreter can build and implement according to the available level of redundancy, which can be taken to account for observed patterns of pausing, fluency, rhythm, etc. At best, Chernov makes a tentative assumption (Chapter 9) about syllable lengthening as a reflection of heightened attention to input, similar to Setton's (1999: 245–247) hypothesis about attention levels revealed in silent vs. filled pauses; but these modelling assumptions are not examined against the background of any structured theory of attention or working memory.

Conclusion

Chernov is probably accurate when he positions himself (in his Foreword) at a mid-point between the 'liberal arts' and 'natural science' communities in interpreting research. Two distinct disciplinary inspirations can certainly still be detected today, although the 'liberal arts' tendency has been displaced or superseded by the emergence of a paradigm based on quantitative research – though still largely discourse-analysis oriented – on large authentic corpora (see Pöchhacker 2004 for a recent survey of interpreting studies). However, another factor distinguishing Chernov from both groups (in common perhaps with Setton, as he acknowledges) is his eclectic and holistic approach to

modelling SI. Disciplinary eclecticism taken too far can result in contradictions and even some confusion, especially when some of the theoretical frameworks invoked have not been fully digested, as sometimes appears in this work in the case of speech processing and contemporary pragmatics. In the case of Relevance Theory it is as if Chernov had found the framework he had been looking for, and which struck a chord, but did not have time to fully integrate it or follow its implications for the older parts of his system. This is the more regrettable since his intuitions about discourse processing were certainly ahead of their time.

Chernov also acknowledged the need for empirical and experimental methods, in contrast to the 'liberal arts' scholars writing in the West at the time, although his procedures admittedly do not meet the standards of the modern 'natural science' interpreting research community attempting to applying the methods of mainstream experimental psycholinguistics. Ultimately, it is perhaps the holistic range of Chernov's approach, encompassing and linking cognitive processing aspects and social and contextual factors, and relating them to a more universal theory of human behaviour, that is his most inspiring and enriching contribution to the field. Holistic treatments, while they may irritate in leaving some points unaddressed, will always have the potential to stimulate new ideas and point to relationships which can then be investigated with refined experimental or analytic tools.

Editing policy

The task of the editors has been mainly one of rephrasing, with some explanatory annotation. Authors writing in a non-native language are of course always edited rather more extensively than those using their native idiom (and professional linguists are far from being an exception). But the consensus among the editors and reviewers was that some rewriting and occasionally, further explanation and comment, were desirable given the 'exotic' theoretical sources (from the English or 'Western' reader's point of view), the original way they are put together, and it must be said, the author's ebullient use of 'communicative' word-order for emphasis and contrast, to an extent which is possibly less acceptable in scientific literature in the rigid-word-order idiom of English than in the relatively free word orders of Russian or Czech.

Most of the editors' notes and explanations concern Chernov's use of linguistics terminology, which might otherwise confuse the reader, being at variance with contemporary Western usage, and sometimes indeed idiosyn-

cratic. An example is 'pragmatic' (though Chernov is aware of the discrepancy and provides his own footnote); another is the absence of commonly accepted terms from the literature like 'functional sentence perspective', and the use of 'syntagm' and 'phrase', or 'sense' (to which the Paris school in interpretation studies has given a technical meaning which is not necessarily fully adopted by Chernov). We have tried to make such concepts recognisable in some cases, but in general, rather than tinker with such terms and risk upsetting a delicate balance, we have confined ourselves to comments in endnotes.

In terms of the book's structure, three formal changes have been made for the sake of readability and balance. First, the six corpora, five natural (from the UN) and one experimental, which are referred to and used for examples and demonstrations in several chapters, have been collected in three Appendices at the end of the book. Secondly, we have provided an English gloss for Russian, Spanish and French in most of the examples (original or interpretation). All translations of Russian citations are Chernov's own; English language references are all quoted in the original. Finally, we have taken the 'Conclusion' section out of Chapter 11 and placed it in a separate chapter (12).[4]

Editors' acknowledgements

We owe a special debt of gratitude to Ghelly Chernov's family – Sergei, himself a conference interpreter, and his mother – for their unstinting help with bibliographic and biographical information. We hope they will derive satisfaction from seeing Gh. Chernov's work presented in full to an English readership.

Notes

1. When the Russian edition of the book was published, the source tapes cited in the text were made available to the publishing house, but it is not clear whether any tapes (then recorded on reel to reel recorders) are still extant.

2. It seems that in Russia, unlike the West, eminent philosophers and psychologists took an interest in simultaneous interpreting: witness the citation of A. A. Leont'ev in Chapter 9 (Leont'ev 1969a: 169–170). In a page devoted to SI in his 1969 book, Leont'ev expresses regret (at a time when Chernov was just beginning his research) that very few researchers were interested in the subject.

3. Uttered with US pronunciation, presumably.
4. Subject and name indexes have been prepared by the publishers.

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Foreword

Since 1987, when my *Introduction to Simultaneous Interpreting* was published in Russian, a lot of water has flowed under the bridge as well as many an empirical study of simultaneous interpretation. Why then have I decided to publish in English now? One reason is that this work remains largely unknown to most readers, to whom Russian is as inaccessible as the proverbial Greek. But there were other considerations (for which I must also thank Robin Setton whose work in part inspired them).

The Nuremberg Trial in 1945–1946 marked the beginning of simultaneous interpretation, a new professional activity. The first research publication to inquire into SI appeared barely ten years later (Paneth 1957) and has been followed by numerous articles, books and dissertations, published mostly in Europe (including Russia). Today, forty years after the birth of the profession, and 30-odd years after research in simultaneous interpretation began, it is time to ask ourselves where we go from here. Should we scrap whatever has been done so far and start again from scratch in view of new scientific developments? Or should we take stock and evaluate what has been achieved and try to outline new directions of research in this rather unusual human activity?

By the nineteen-sixties, aided by the advent of the multichannel tape recorder, research was being published by several psychologists and professional interpreters, some of whom were also theoretical linguists (Henri C. Barik in Canada in 1971; David Gerver in the United Kingdom in 1974; Irina Zimnyaya & Ghelly Chernov in 1970; Anatoly Shiryaev in 1971, Ghelly Chernov in 1978; Danica Seleskovitch, Marianne Lederer, & the Paris-based *école du sens*). 1978 saw the publication of papers from the interdisciplinary seminar in Venice organised by D. Gerver (Gerver & Sinaiko 1978), which contained a wealth of ideas on SI.

From the late 1980s, the regular publication of *The Interpreters' Newsletter* by the Higher School of Modern Languages for Interpreters and Translators at the University of Trieste acted as a vehicle for a new wave of research projects, and further collections followed (Gran & Dodds 1989; Gran & Taylor 1990), most significant among them being neurophysiological studies. Among

important recent publications we find also the collective monograph *Bridging the Gap: Empirical Research in Simultaneous Interpretation* (Lambert & Moser-Mercer 1994), the three volumes of *Teaching Translation and Interpreting* (Dollerup et al. 1992, 1994, 1996), several papers by D. Gile and S. Viaggio, and work originating in countries like Finland (Universities of Kouvola, Joensuu, and others) or the Czech Republic (I. Čenkova at Charles University in Prague) among others.

This literature has offered a wealth of ideas and suggestions, and in just a few cases, comprehensive models, notably an information processing model by Massaro-Gerver-Moser (Massaro 1978; Gerver 1977; Moser 1978), the so-called Theory of Sense expounded in detail by D. Seleskovitch and M. Lederer (Seleskovitch 1968, 1978; Lederer 1981), Laura Bertone's Speech Act Model (Bertone 1989), and Robin Setton's Cognitive-Pragmatic Model (Setton 1999).

Although it has been claimed that not enough facts about SI have been firmly established and that substantial additional banks of data and facts on SI are necessary, some facts were firmly established at the initial stage of research in SI and are now taken as axioms (or, to be more exact, a general agreement was reached on their validity): (a) that there is indeed simultaneity of SL message perception (listening) and TL speech production; (b) that interpreters deal with *sense* (discourse, text) and not words ('...interpreting [...] involves complex and difficult mental operations that require much more than mastery of linguistic skills in the relevant working languages' (Gile 1993: 136)); and (c) that SI activity falls within the framework of both interlingual and intercultural communication.

Recently there have been calls for the collection of more verifiable facts about SI and efforts to get beyond the deficiencies of the 'personal theorising' (PT) phase of research in SI. The suggestion is that 'Interpretation Research and Theory' (IRT) should replace the PT paradigm (Gile 1990: 28–41).

How is scientific research generally conducted? First, we must have an observable phenomenon (in our case – professional simultaneous interpretation). When we are about to begin our research we try to verify whether the observable part of the phenomenon (the tip of the iceberg) is really what we have initially taken it for: for example, is simultaneous interpretation really simultaneous? and if it is so, in what respect? (is it really an 'iceberg'?). Then we begin thinking about the nature of the phenomenon observed, its hidden mechanisms, and an idea (a hypothetical model) of such a mechanism is formed. Finally, we verify our hypothesis through observation and (if at all possible) experimentation. By assiduous observation one can establish quite a number of facts about the tip of the iceberg, while its greater part hidden in the depths

requires an additional effort involving hypothesis formation and verification. In fact, this is the way initial studies of SI have been done. D. Gile calls this type of research 'personal theorising'; I would rather classify it as Fact-Finding and Conceptual Modelling.

Among interesting recent publications on SI are those produced by the Trieste School, although the reported investigations are somewhat uneven. Alongside some extremely interesting and revealing results (Fabbro & Gran 1994; Rizzine 1990) there are also some that fail to go beyond fact-finding; they seem to be trivial and even irrelevant because they do not take into account the specifics of communicative situations in SI.[1]

Quite a number of recent publications concern interpreter training, which is not accidental. Among them are books by D. Seleskovitch and M. Lederer (1989) and D. Gile (1995), which both contain a wealth of ideas and suggestions in this field, and the three volumes on *Teaching Translation and Interpreting* (Dollerup et al. 1992, 1994, 1996). There is indeed an urgent need to research teaching methods on the basis of fundamental theory, and if the research now in progress can move in the direction of applied science it will make interpreter training much more intensive and efficient than it is now. There is no doubt that students should be aware of the fundamental facts and processes in conference interpretation, as most faculties and even many professionals apparently agree (Viaggio 1992, 1994; Visson 1999) since most professional schools now offer some kind of course in basic theory.

In her introduction to *Bridging the Gap,* Barbara Moser-Mercer suggests that there are two interpretation research communities – the 'liberal arts group' (*théorie du sens*, or interpretative theory) and the 'natural science community' ('information processing theory'), the first of the two characterised by 'its general consistency, [...] its comprehensiveness and simplicity, its intuitive explanatory force and consequent appeal to pedagogy [which] have all combined to give it widespread acceptance'. She then indicates that 'there have been only a few attempts at verifying the theory, partly because it does not lend itself readily to verification' (Lambert & Moser-Mercer 1994: 20). The other group is most comprehensively represented by the SI information processing model, which I would call the Massaro-Gerver-Moser model of the SI process. Moser-Mercer mentions several names among the protagonists of both groups and indicates that the aim of the volume is to bridge the gap between the two. Since she does not assign Chernov to either group, although there is a reference to some of my representative work and I am among the contributors to the collection, I have since been inclined to assume that my work was to be placed somewhere on the 'bridge' itself, halfway between the two extremes.

That is how I tend to regard my own model, the Message Probability Anticipation Model of basic psycholinguistic mechanisms in SI, the central hypotheses of which were published with supporting experimental results between 1970 and 1987 in several articles (mostly in Russian but some also in English) and two monographs in Russian, and which in today's terms may be classified as a semantic-pragmatic model.

I am inclined to take Robin Setton's monograph *Simultaneous Interpretation: A Cognitive-Pragmatic Analysis* (1999) as another 'bridge' between the two extremes. The author follows exactly the same methodology as I did, i.e. observation and hypothesising – experimental testing of the model hypothesised – analysis of the results obtained – conclusions and predictions for future investigations. Relying on current theories in psychology and linguistics, Setton has arrived at conclusions very similar to those yielded by my model, thus corroborating my conclusions. I also found that some of the ideas and reasoning rooted in the Russian school of psychology and neurophysiology (A. N. Leont'ev's Activity Theory in psychology and P. Anokhin's Theory of Anticipatory Reflection of the Outside World by the Living Organism and Functional Systems Theory) continue to offer rich potential for research in SI. In other words, I believe that my model still offers interesting possibilities and deserves to be known to the non-Russian speaking SI research community.

Probability anticipation as a general concept needs some explanation and deserves to be better understood by professionals. Visson, an author of SI manuals and a professional conference interpreter writes in her manual (Visson 1999: 113), in discussing problems with interpreting proverbs, that it may be dangerous to use a good target-language (TL) equivalent of a proverb since speakers are prone to develop the metaphor contained in the proverb. She writes that 'all theories of [probability anticipation] notwithstanding, *a speaker's development of a metaphor cannot be accurately predicted* (my emphasis). The writer does not seem to be aware that that this in itself is probability anticipation, predicting the development of the metaphor with a probability of 0.5. So the theory needs some explanation.

Another important stimulus for the publication of the present English version of my book was the emergence of Relevance Theory (Sperber & Wilson 1986/1995) which I find to be highly relevant to my model, and which gives many new insights into the mechanisms of SI.

A word is in order about the materials I used as a corpus. Besides the experimental material described in Chapter 11 (see Appendix C), I also used about 40 hours of tape-recorded UN debates (recorded in 1968) with parallel transcripts of SI into four official UN languages (English, French, Spanish, and

Russian) (see Appendix B); the transcripts of the 1978 UN remote (satellite) interpretation experiment in Buenos Aires (see Chapter 5, §26 and Appendix A) and some observations of the performance of SI students at the UN Language Training Course at the Maurice Thorez Institute of Foreign Languages in Moscow between 1968 and 1975.

In the Foreword to the Russian edition of 1987 I expressed my deep gratitude to my colleagues among Russian linguists and psychologists who at various stages of my work took the time to discuss various linguistic and psychological aspects of my theory. I am particularly indebted to my co-author in the original hypothesis of message development probability prediction, Professor Irina Zimnyaya. My gratitude goes also to the late professors L. Barkhudarov, G. Kolshansky and O. Moskalskaya, and to Professor Shveitser, my colleague both in translatology and in the practice of SI, who at various stages of my work made valuable comments and suggestions. It goes without saying that I accept all the blame for whatever faults that there are in my work.

I am also indebted to my younger colleagues A. Gurevich, S. Lukanina, Y. Starostina, A. Usova and G. Filatova, who as undergraduate and postgraduate students at the time of the active research did all the arduous and time-consuming work needed for the initial time-coordinated temporal analysis of both the experimental corpus and the recorded UN material (Chernov et al. 1974).

Last but not least, my thanks go to my colleagues in the conference interpreting profession for their sympathy and support, and above all, to those among them, seasoned professionals, who participated in my rather strenuous experiments, and who for obvious reasons must remain anonymous.

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Moscow

Abbreviations and symbols

AI	artificial intelligence
CDA	cumulative dynamic analysis
CSC	configuration of semantic components
EVS	ear-voice span
SCs	semantic components
SI	simultaneous interpretation
SL	source language, original language
SPS	semantic and pragmatic structure
SSS	semantic and sense structure (= semantic and pragmatic structure)
TL	target language
Translation	with initial capital, used as a generic term to denote both (written) translation and (oral) interpretation

Chapter 1

The psycholinguistic approach to SI research

1. SI and the linguistic theory of translation

Insofar as simultaneous interpretation involves transferring a verbal message in one language into another language, we cannot ignore linguistics in our analysis. In the 1960s and 1970s several models of the translation process were developed within the framework of linguistic theories of translation (Nida 1964; Shveitser 1973; Catford 1965; Komissarov 1973, 1980; Barkhudarov 1975), which are relevant to varying degrees for the study of SI.[1]

SI is a *process* whose several aspects are embodied in an observable product: a sequential acoustic and verbal signal (a sequence of speech sounds) unfolding over time. At the same time the SI product is not observable, insofar as it is a mental product, the sense of a verbal message perceived by the audience. With modern technology one can make a dual-track audio recording of the original SL speech with the interpreter's TL rendition and both be transcribed for analysis. This is how SI research is done, but we should remember that certain important traits of natural speech are lost in the process, including phonotactic and prosodic features of speech, both in SL and TL, i.e. intonation, stress, and rhythmic characteristics, which are so important in SI. For example, D. Gerver (1975: 126), discussing disambiguation difficulties in SI, gives this example of an ambiguous sentence:

J'ai trouvé ce fruit délicieux =

1. I found that delicious fruit.
2. I found that that fruit tasted delicious.

However, he fails to observe that this ambiguity exists only in writing and out of context. Rhythmic traits and intonation leave no room for ambiguity: it is either

J'ai trouvé // ce fruit délicieux (I found that delicious fruit)

or

J'ai trouvé ce fruit // délicieux (I found that fruit delicious).

This means that only models which treat translation as a *process* are appropriate for studying interpretation. To model the processes of analysis and synthesis in translation, we need to consult models developed within the linguistic theory of translation as well as data from general linguistics. According to Shveitser (1973: 60), the translation process is 'to a certain extent characterised by the same regularities that characterise verbal activity in general'. Since verbal activity reflects 'human interaction in the course of verbal communication' (Zimnyaya 1973: 10), while translation involves different languages, and verbal communication is mediated through an interpreter or translator, translation or interpretation of any kind can be defined as *mediated bilingual communicative activity*.

Treating an act of translation as an act of communication, Shveitser highlights two of its important characteristics as follows:

(1) the translation act is in essence split into two interrelated communicative acts – communication between the Sender of the message and the translator, and communication between the translator and the Addressee;

(2) the translator as a partner in communication *takes turns* [my emphasis] assuming now the role of the Receiver, now the role of the sender, and this change of roles significantly affects the translation process.

(Shveitser 1973: 63)

Now since one of the basic traits of SI is the simultaneity of the two acts, in which the interpreter, unlike a translator, plays the roles of receiver and sender concurrently, this must evidently be a basic difference between translation and interpretation in its SI form. This idiosyncrasy of SI, the specificity that distinguishes it from all other kinds of interlingual communication, lies exactly in that its main and, basically, sole objective is to ensure communication between the participants of the act within the time span of that same act.

The linguistic theory of translation has actually made no specific attempts to bring SI within its scope. A. Fedorov, one of the pioneers of the linguistic theory of translation in Russia and in the world, says explicitly in his *Introduction to the General Theory of Translation* that interpretation, and SI in particular, falls within a special field of study and requires its own specific research methods (Fedorov 1983: 10).

2. The methodological basis of a psycholinguistic approach to SI

The salient characteristics of SI may be listed in the form of a table (Table 1).

Table 1 contrasts the characteristics of several types of interlingual (translatorial) activities along the nine most important parameters which together

Table 1. Comparative characteristics of SI

		Type of interlingual activity				
		Translation (written)	Sight translation	Conference interpretation Consecutive	Simultaneous	SI with text
Form of TL discourse	*written*	yes	at times	yes	yes	yes
	oral		at times			
SL discourse perception modality	*visual*	yes	yes	at times		yes
	audio			yes	yes	yes
Offer of SL discourse	*once*		yes	yes	yes	yes
	several times	yes	at times			at times
Temporal correlation of communicative acts	*concurrent*		at times		yes	yes
	consecutive	yes	yes	yes		
External pace control	*yes*				yes	yes
	no	yes	yes	yes		
Temporal constraints	*unconstrained*	yes				
	loosely constrained		yes	yes		
	strictly constrained				yes	
Information processed per text unit	*unlimited*	yes	at times			at times
	limited		yes	yes	yes	
Type of communication	*mass communication*	at times	at times	at times	yes	yes
	interpersonal	at times	at times	at times		
Interpersonal relations in communicative act	*absent*	yes	yes		yes	yes
	present		at times	yes		

define the specificity of SI as a type of interlingual communicative activity. These unique features of SI make purely linguistic analysis inadequate to explain the process. Linguistic analysis alone cannot explain why it is that, while the SI process rules out the possibility of a 'gradual approach to the optimal variant by trying out several possible variants and rejecting those that do not meet certain functional requirements' (Shveitser 1973: 60), communication through SI still remains possible without breaking apart the semantic and pragmatic invariant of the SL message as determined by '[the] communicative intent and functional characteristics of the utterance being translated and [...the...] relations between them' (op. cit.: 69–70).

SI research involves pairs of texts (tape-recorded SL and TL discourses), and linguistic phenomena and regularities are therefore relevant. At the same time, insofar as one also addresses specific performance traits (see Table 1 above), one must go beyond the purely linguistic framework and refer to other disciplines and research in speech and language performance. Psycholinguistics, as a discipline straddling the study of language as a system and as a capacity (speech mechanisms) has exactly the right scope to tackle SI research.

Communication theory is another discipline we cannot ignore, given that SI, as already pointed out, is a form of verbal communication.[2]

An adequate theoretical grounding for our psycholinguistic approach can be found in Activity Theory as developed by Russian psychologists and psycholinguists (Vygotsky 1934/1999; A. N. Leont'ev 1972; Luria 1963, 1970; Zhinkin 1964, 1967; Sokolov 1960; A. A. Leont'ev 1967, 1969a, 1969b; Zimnyaya 1973, 1974b, 1975).

This framework provides a basis both for our general research approach and specific methods, in the principles of the *unity* of mental processes and human actions (A. N. Leont'ev 1972, 1975), and the unity of language and speech combining the means and method for human communication (Zimnyaya 1973), two aspects of verbal activity (Shcherba 1974),[3] and as the statics and dynamics (paradigmatics and syntagmatics) of verbal activity.

The same principles also underlie the isolation of semantic and sense structure as unifying the two aspects of human perception, the analysis of the semantic structure of a discourse in its unity of redundant theme and informative rheme; and, finally, the model of simultaneous interpretation as a verbal activity which is both complex (comprising speech reception and production) and integrated.

Another important methodological principle underlying the present research is the principle of *communicative significance*, on which SI can be seen

as a communicative verbal activity making bilateral communication possible, thus licensing the concept of an analysable 'SI communicative situation'.

The third important methodological basis of a psycholinguistic approach to SI is the principle of *reciprocal activity* of the brain in the process of sense perception, closely linked with the principle of *anticipatory reflection* of the outside world by a living organism (Anokhin 1968, 1978) (see below). This principle was further developed by the Moscow school of psychology (E. N. Sokolov 1960; I. M. Feigenberg 1963, 1973; A. A. Leont'ev 1969b; I. A. Zimnyaya 1970a) as the Theory of Probability Prediction.

Research assumptions on SI processes

Considering SI as a type of communicative verbal activity requires the introduction of a number of theoretical premises about SI processes. These are assumed to be hierarchically layered, dynamically developing, cumulative and discrete:

1. The assumption that SI proceeds at *multiple, hierarchical levels* (cf. the Modularity Hypothesis as described in Fodor 1983) underlies our analysis of redundancy and of the mechanisms of probability anticipation at verbal, meaning, and sense levels[4] in SL discourse perception and comprehension, and of anticipatory synthesis of the TL discourse.
2. The principle of *dynamic development* arises from the fact that since the SL message is delivered only once and that its perception and reproduction are concurrent, the SI processes must be assumed to be in continuous development.
3. The principle of *cumulative sense perception* arises from the need to comprehend and grasp the meaning of a complete discourse and to keep in mind the complete context of the foregrounded part of the discourse, the ongoing utterance and its anticipated message. It also underlies the analysis of the SI communicative situation.
4. Finally, the interpreter's mental actions and operations are *discrete* in nature, since they represent operations over certain units of meaning and sense.

3. The object of SI psycholinguistic research

We have identified SI as an object of empirical study and suggested the most promising methodological and analytic principles as determined by its specific characteristics. We will now define the object of our own research as

> Simultaneous interpretation as a *complex type of bilingual verbal communicative activity,* performed *concurrently* with *audio* perception of an *oral discourse* offered *once only,* under conditions imposing *limits on available processing time* and *strict limits on the amount of information* which can be processed, its *object and product* to be observed in the *semantic (meaning and sense) structure* of the verbal communication processed.

The first part of this definition means that whereas in speech psychology, listening and speaking are considered as two separate activities (Zimnyaya 1973, 1978), SI is seen as a single though complex verbal activity. In the Vygotsky-Leont'ev school of psychology, human activity is characterised by needs that find their expression in the action's objective, and by its own object and product; and it is structured. SI meets all these requirements. The intention to comprehend the message in the speaker's discourse and render this message in TL constitutes the *need*, motive and objective of the interpreter's actions and operations. That in turn determines the *object and product* in SI, which is seen in the message as rendered.

However, the object and product of SI do need to be further specified, since the message in TL is only ideally the same as the message contained in the SL discourse. Let us assume initially that the *object* of the interpreter's activity is the *sense of the SL discourse* – her objective being to comprehend it and render it in TL – while the SI *product* will be the *sense of the TL discourse*. SI is a *structured activity* insofar as it consists of several stages, actions and operations (from listening and perception to TL discourse generation).

The unity and independence of SI activity can be seen both in its internal (deep level) structure and its surface verbal performance.

Let us first deal briefly with its deep-level structure. To do this we will have to restate some of the postulates and assumptions of the Theory of Verbal Activity developed by Irina Zimnyaya, which addresses the psychological features of listening and speaking. Sense perception and sense expression (speech production) are deemed to have similar structures which can be combined in a single *verbal-communicative function* comprising three levels.

The first or *sensorimotor* level is responsible for analysing the acoustic (verbal) input and synthesising the output signal. At the second level, the

subject matter of the speaker's thought is accessed through the analysis of the entire hierarchy of sense relations[5] and the subsequent synthesis (in a concurrent spatial matrix) of all previous decisions aimed at bringing about a certain result, i.e. comprehension or non-comprehension of the speaker's thought. The reverse process, in which thoughts are synthesised for expression in the sense of an utterance, is done at the stage of *spatial synthesis* of the *internal program of the utterance*. The process of expression of the content of thought for the listener presupposes the establishment of a whole network of sense relations. This 'spatial synthesis' is isolated by Zimnyaya as the second level in the verbal-communicative function, common to both listening and speaking. (The third level can be disregarded as irrelevant for our purposes.)

Thus, internally, the unity of SI activity is determined by the stage of spatial synthesis and by the internal TL utterance program as borrowed from the SL speaker. These stages are subject to strict limits on the available processing time and amount of processable information and as a result are often of an incomplete or 'chunky' nature. In SI we may assume that there is concurrent listening and speaking, performed under conditions of strong internal and external noise, and even 'defective' listening and speaking.

From an external viewpoint, the unity of SI activity is determined by the inseparable linkage of listening and speaking, since in the absence of one of these two aspects SI ceases to exist, i.e. the act of communication is interrupted. Thus listening and speaking in SI are two opposing and 'mutually harassing' sides of a single whole, since neither of the two can be extracted from SI without its disintegration.

The formula S1 $\Rightarrow$ L2 (where S is the Speaker and L is the Listener) is viewed as a single communicative act considered as an elementary unit of verbal communication (Zimnyaya 1973:5), but since listening and speaking are not independent, but interact within a single complex activity, SI appears as a much more complex communicative act (Figure 1).

Our study will focus on L2 $\Rightarrow$ S2, or, when self-monitoring becomes significant, L2 $\Leftrightarrow$ S2.

Also, while in SI situations an act of communication is only possible through SI, making it an independent communicative act, the overall scheme of communication is more complex (see Figure 2).

The Speaker addresses Listeners L4 (listening to SL) and L3 (listening in TL) and as a rule, ignores the Interpreter (L2, S2). In fact she[6] usually directs her speech at the L4 Addressees who share her language and 'culture', and only sometimes also to at L3. The paradoxical feature of an SI situation is that the Interpreter L2 (S2) plays the role of a Receiver without being an

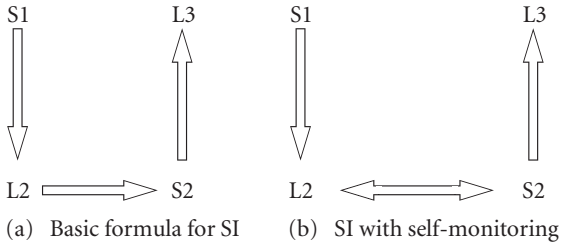


Figure 1. The communicative act of SI

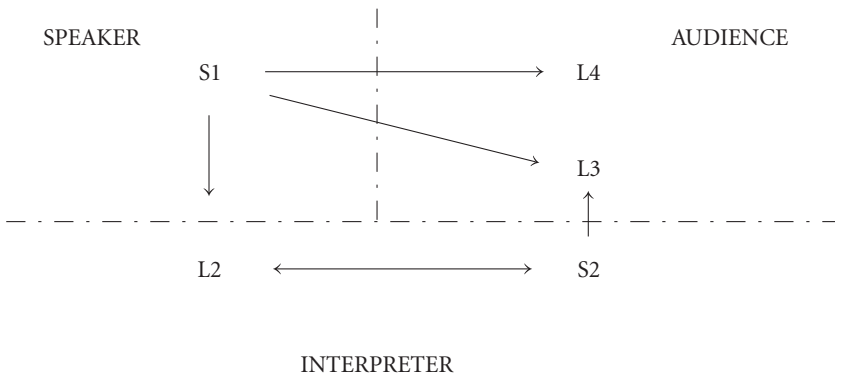


Figure 2. Communication from Speakers (S) to Listeners (L) in SI

Addressee, while the L3 listener actually receives the message from S2 (L2). Thus, in contrast to a monolingual communicative act, where the Receiver and the Addressee are one and the same person, in the SI communicative act the Receiver of the original message (L2) and its Addressee (L3) are two different people, which cannot but affect the communication.

There is no doubt that any activity is based upon elementary actions and operations into which it can be broken down and analysed. However, identifying elementary units of SI communication is no easy task, and has in the past defeated researchers like Barik (1969), or Shiryaev (1973, 1979). One may assume that an 'SI unit' must be linked to a unit of sense, and to the level at which the SI process is being performed at a given moment; and that it also depends both on the performer of the activity (the interpreter) and on specific conditions and determinants of that performance. This would mean that SI units must vary (a) with different interpreters and (b) for the same interpreter at different times during interpretation.

In general, following Zimnyaya's reasoning, one can assume that just as the 'act of communication' can be taken as the unit of ordinary verbal communicative behaviour, the unit of SI communication can be taken to be an act of mediated communication.

Linguists engaged in SI research are likely to be most interested in the object and product of the SI activity, i.e. the semantic (meaning and sense) aspect of the SL (TL) discourse.

The discourse we are typically concerned with in SI is a speech or contribution to a debate at an international conference, which will very rarely be a single utterance; as a rule it is a whole (sometimes very long) sequence of utterances which forms a single discourse by the laws of coherence and cohesion, and by its topical unity (hypertheme). We will endeavour to show below that only a *discourse* can be the object of SI (both in theory and in practice[7]). Because SI is performed under extreme conditions, with severe constraints both on the time available for processing and on the amount of information processed (see next Chapter), we have to look for the object and product of SI not, as in written translation, in terms of the whole communication as such, but in its minimal component, i.e. its semantic (meaning and sense) structure. This conclusion is also prompted by the need to consider the interpreter's motivation – to render the message and ensure communication – as well as by observations of practical SI that could be viewed as 'minimal translation'.

Research in psycholinguistics is concerned with psychological mechanisms which underlie verbal activity as such and are therefore relevant to SI. Among them are the allocation of memory and attention to conscious actions as distinct from subconscious operations, the monitoring of these actions and operations, and probability anticipation. There may be further, as yet unrevealed and unspecified psychological mechanisms.[8]

These various mechanisms are undoubtedly utilised by the interpreter, as can be seen from various empirical SI studies, since SI is performed in many forms and variations, at various speeds (though the pace is invariably controlled by the speaker, as we shall see in Chapter 2), in differing regimes (in some cases up to 40 or 50% of the interpreter's production may proceed against the background of pauses in the source speech), and in varying language combinations. SI may be performed into or from either a native (A) or acquired (B) language, or from a passively known (C) language, which may make a significant difference. Finally, experiments in SI have been carried out with subjects at different levels of expertise, including professionals, 'amateur' bilinguals (Barik 1969), students of SI, and even language students.

Obviously in all these different cases the role of various psycholinguistic mechanisms can be expected to differ substantially, with more prominence being given to some than others. We intend to isolate a psycholinguistic mechanism which, as we will try to demonstrate, may be viewed as basic in SI, and indeed as the only one capable of ensuring simultaneity: this is the mechanism of verbal, syntactic and semantic probability anticipation of message development in the perception and comprehension of the SL discourse, and anticipatory synthesis in message reproduction in TL (or generation of the TL message). We will try to show that this is a general mechanism in human speech processing and is, in turn, based on a general feature of human languages – their redundancy as a key factor in the reliability of human communication.

The natural methodological choice for the purpose of isolating the subject of our investigation is the analysis of *typical* corpora, i.e. instances of professional SI performed at international conferences, or in experiments which closely simulate real conference conditions, and with audio perception only (without a text supplied to the interpreter).

The next two chapters address the special characteristics of SI as performed in these conditions.

Chapter 2

Speed, memory and simultaneity

Speech processing under unusual constraints

4. Simultaneity in SI

In 1963 Z. Kochkina, a Russian psychologist, expressed doubts as to whether SI is actually simultaneous (with concurrent listening and speaking), based on the then widely-held belief in psychology that the interpreter's attention could not be simultaneously directed to these two distinct processes. On the basis of an experiment Kochkina postulated that SI only *seems* to be 'simultaneous', and that 'simultaneity' is in fact only attained 'through (1) contraction of the message and (2) a faster rate of the interpreter's speech as compared with the speaker' (1963:109). Some other researchers at that time also suggested that interpreters must try to overcome the difficulty of concurrent listening and speaking by taking maximum advantage of pauses in the speaker's discourse to say their piece (Goldman-Eisler 1968; Barik 1973), thus casting doubt on the very fact of simultaneity of listening and speaking in SI.

Since a doubt had been raised about the actual (as opposed to imagined) simultaneity of the process, the facts had to be established. This became possible towards the end of the 1960s with the invention of multichannel tape recorders on which the speaker's and interpreter's speech streams could be recorded concurrently, providing a 'cross-section' of the temporal relationship between the acoustic events registered on the two tracks of the tape. Such investigations were in fact carried out independently and almost at the same time in several countries by researchers like H. Barik (1973) in Canada, Gerver (1976) and Goldman-Eisler (1968) in Britain, and Chernov, Zimnyaya and Shiryaev (1971) in Russia.

These researchers experienced some difficulty with temporal analysis (breaking up the recorded SL and TL discourse into speech chunks and pauses) and the subsequent precise measurement of the duration of each chunk and pause. As had already been observed in speech psychology, not every break in the sound wave is perceived by humans as a pause; some of the breaks escape

perception altogether, as for example a break in sound before an implosive consonant. (For instance, in the word *standard* there are three distinct breaks in the continuity of the speech flow: after [*s*], after [*n*] and after the final [*d*]). According to data collected by Kasparova (1964), who specifically investigated human perception of speech pauses, a break of less than 50 ms is perceived as a sound distortion or a pause by only 66% of subjects, and even breaks of 100 ms may remain unnoticed by 18% of subjects (a result which may be explained by the fact that the duration of a spoken syllable across human languages is around 200 ms). Various speech psychologists have accepted values for the threshold of discrimination or perceptibility of pauses in speech of 150 to 600 ms, the most widely accepted value being 200–250 ms.

Another difficulty stems from the fact that, whereas a human observer using only the naked ear and a stopwatch cannot reliably record speech chunks or pauses of less than a second or more, a level of precision which is inadequate for our purposes, automatic recordings cannot distinguish speech sounds from the inevitable noise in both live and laboratory conditions.

Different methods have been used to overcome these difficulties. Shiryaev, Goldman-Eisler, and Zimnyaya and Chernov made parallel oscillographic logs of the two tracks which were read by personnel trained in speech analysis (an extremely laborious and time-consuming job), allowing reliable identification of speech chunks and pauses of 5 to 20 ms duration. Barik used a computer, but to get rid of extraneous noise had to make a duplicate tape on which an operator used a buzzer to separate chunks of speech, thus introducing a systematic error due to the human reaction time of about 200 ms. Still, since the error was more or less constant, the results obtained may be regarded as reliable. A computer was also used for the subsequent analysis of temporal parameters.

We managed to overcome both difficulties (the effort factor and operator response time error) by the use of an electronic speech analyser specially designed for the purpose, which filtered out non-speech sounds by introducing a systematic delay of 200 ms, thus registering as a pause any separate sound on tape lasting less than an average syllable and, therefore, not qualifying as a speech sound (Chernov et al. 1974).

The results obtained using various methods in different laboratories worldwide differ only in insignificant details, and thus offer a convincing picture of the temporal correlation of the two verbal strings (in SL and TL) and, therefore, of the high degree of overlap of listening and speaking in the interpreter.

The following overlapping 'events' are possible in principle:

SL speech – TL pause (S/P);
SL speech – TL speech (S/S);
SL pause – TL speech (P/S); and finally,
SL pause – TL pause (P/P).

The last case is of no interest to us, since it simply means that no SI is in progress.

Most researchers also disregard the P/S case, i.e. they assume that the interpreter cannot perceive anything while she is speaking during SL pauses, so that the combined duration of S/S and S/P segments is taken to be 100%.

Some data obtained from recordings of professional interpreters (excluding performances by students and 'amateurs' (as in e.g. Barik 1973) are presented in Table 2.

Zimnyaya and Chernov (1970) and Shiryaev (1971) found an even greater degree of simultaneity for separate passages with adequate interpretation quality. They report SS values of 82% and 84,5% respectively. The data also suggest that the degree of simultaneity does not depend on the language combination.

As Shiryaev has shown, these values are more or less stable with respect to rates of delivery (faster speech), since the interpreters have demonstrated a tendency to maintain their own rate of speaking in TL even with considerable change in the speaker's delivery, except for 'very slow' speech. Several studies[1] have also shown considerable deviations from the mean with variations in the level of skill and professionalism of the interpreter, which undoubtedly reflects the specific SI strategies acquired in the initial stages of SI training prior to the formation of professional strategies and skills.

Table 2. Degree of input/output simultaneity in SI as measured by various authors

Language combination	**S/S + S/P = 100%**	**According to**	**Data source**
English-French	67% + 33%	Barik 1973	experiment
French-English	70% + 30%	Barik 1973	experiment
French-English	65% + 35% 75% + 25%	Gerver 1977	live conference experiment
French-Russian	79.1% + 20.9%	Shiryaev 1971	experiment
English-Russian	70.5% + 29.5%	Chernov 1978	live UN meetings
Russian-English	70% + 30%	Zimnyaya & Chernov 1970	experiment

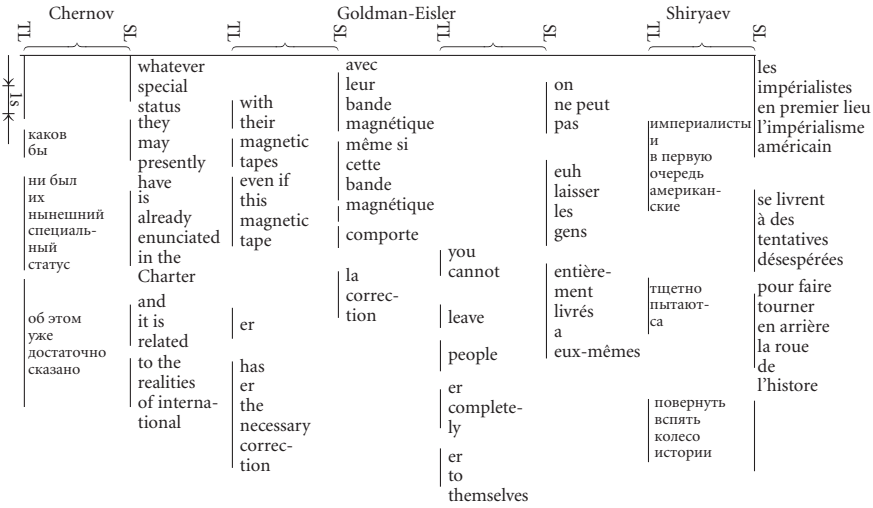


Figure 3. Synchronised segments of SI

In short, precise investigations using the then state-of-the-art equipment have demonstrated that SI is indeed simultaneous in the sense that perceptual and production processes are concurrent. This means that SI as an activity in general, and individual SI communicative acts, are performed in conditions of powerful 'semantic noise': speech perception proceeds against the background of concurrent production of the speech chunk in TL (leaving aside for the time being the question of what exactly a TL speech chunk in SI is), and conversely, the TL speech is produced against the background of ongoing perception of the SL speech.

Let us now consider some synchronised SI transcriptions made by Shiryaev (1979), Goldman-Eisler (1968) and Chernov (1978) (Figure 3).

These samples show graphically that while TL speech is produced concurrently with SL perception, the chunks of interpreted discourse in TL *lag behind* the corresponding speech chunks in SL by between 1900 ms (1.9 seconds) and 6000 ms (6 seconds). At first glance that would seem to be the delay necessary for the perception and comprehension[2] of the SL chunk and the planning, formulation and articulation of the corresponding chunk (as the interpreter sees it) of TL discourse. As the synchronised samples show, this lag is far from being constant, and in fact varies very widely, although it is usually around 3 seconds. It is interesting to note that this value was quite correctly identified as the average time lag in the very first known research paper on SI, by Eva Paneth (1957), who presumably used no equipment other than a stopwatch.

Having established that SI is in fact simultaneous, we must also observe that it is only *relatively* simultaneous, since chunks of TL discourse lag behind the SL discourse chunks with corresponding content.

According to empirical data, this lag, and the degree of simultaneity of perception and production, are independent of the SI language combination, and only relatively dependent on the speed of SL speech, and consequently, on the rate of SI activity; but depend considerably on the level of professionalism of the interpreter, i.e. the skills and strategies employed. Such synchronised samples thus offer a window into the psycholinguistic mechanisms involved in SI.

A closer look at Figure 3 reveals that, because of time pressure and other reasons to be discussed later, SI is a type of interpretation which *starts before the SL utterance is completed.*

Research into the temporal parameters of SI clearly reveals two of the extreme conditions obtaining in SI: *the concurrent nature of SL speech perception and TL speech production* and *the need to start the translation process before the SL utterance is completed.* On these two parameters alone SI differs radically from all other kinds of translation and interpretation, written or oral.

5. Time constraints

Let us now turn to other aspects of the extreme conditions of SI. These are:

1. faster transformation (compared to other kinds of translation and interpretation) of the SL message into TL discourse; to be more precise, SI is performed under *severe time constraints;*
2. *strict external control* over the *pace* of SI activity (the pace is set by the speaker), in contrast to all other kinds of translation or interpretation. The latter parameter makes SI comparable with some kinds of engineering operations, where decisions must be made instantly in response to outside circumstances beyond the operator's control (cf. the constraints on air traffic controllers, nuclear reactor operators in an emergency, jet pilots, etc.);
3. *unequal conditions for speech production between speaker and interpreter,* as occurring typically when the speaker *reads out* a prepared text which the interpreter must render spontaneously in TL.

Let us consider these parameters.

Human information-processing capacity per unit of time is limited at least by the fact that any sensory impulse (information coming to the brain from

our senses) has to travel along neural paths at a finite speed (which is not very great in terms of measurable speeds). Many details of that machinery remain unknown to us. As psychologists say, 'it is easier to work out a model of neural machinery [...] than to decide what in fact this machinery is doing' (Lindsay & Norman 1972/1974:97). George Miller established another limiting factor in human information-processing activity: seven-plus-or-minus-two as the maximum number of units which can be processed simultaneously in human working memory, in which the signal tends to weaken and disappear within 30 seconds (Miller 1956). Therefore the amount of information a human brain is capable of processing in a unit of time is limited, although its value remains imprecise (from 25 to 100 bits per second, according to different sources). However, the exact figure is not really of interest for our purposes; for the sake of the comparisons we want to make, the principle of limited capacity and a single basic value for this limitation will suffice. This means that, at an assumed average (or preferred) speaking rate of 120 words per minute for SI input (in English; Gerver 1975), and an average of 400 words per typewritten page (in English), each page of 400 words would be read in 3.3 minutes, or about 200 seconds, so that the simultaneous interpreter would be processing the maximum amount of verbal information that a human being is capable of handling.

The translator working with written texts has no such limitations. For example, UN Secretariat rules require a translator to produce an average of 8 typewritten pages in 7 daily working hours; in other words, the simultaneous interpreter must process 16 times as many bits of information than a written translator in the time allotted. Also, the translator can make use of dictionaries, encyclopaedias and other background sources, which the simultaneous interpreter cannot do.

Thus the amount of information processed by a simultaneous interpreter, depending partly on the pace set by the speaker, is limited by human physiological factors and the capacity limitations of the human brain, while the translator is free to determine her own rate of information processing in translating.

6. Externally controlled pace of activity

This parameter seems to be evident from the analysis of simultaneity and the average lag of TL speech from SL speech. Yet the very fact of the considerable variability of this lag (the registered spread is from 200 ms to 10 or even 15

seconds, i.e. 75 times!) seems to cast doubt on the assumption that the pace of SI is under external control.

However, the varying lag does not change the basic fact that while there is no functionally determined lower limit to response speed, there is an upper limit to the lag which any individual interpreter can maintain, which is a function of her short-term memory capacity, as well as of the SI strategy employed. The SI process models proposed by Gerver (1976) and Moser (1978), reflecting psychological data on the limited capacity of short-term (working) memory, where the initial material for immediate processing is accumulated, vividly illustrate the situation of memory overload typical for SI, which results in losses and errors. One might assume that this capacity is co-ordinated with the optimal pace of interpretation, itself reflecting the average rate of SL speaking, which at least for the European languages is about 120 words per minute (Gerver 1976; Moser 1978; Lederer 1981; Dejean le Féal 1978; Shiryaev 1979). According to Shiryaev, interpreters tend to maintain a relatively constant rate of speech, suggesting that as far as possible they try to resist external (the speaker's) control over their rate of speaking:

> interpreters generally adopt a rate of speaking in TL, apparently optimal for themselves, which tends to lie at the lower end of the average rate of public speaking for the given target language [...] The interpreter's rate of speech falls within a rather narrow average span, and when the speaker's delivery increases, the interpreter's does also, but without exceeding this limited span.
> (Shiryaev 1979: 79)

Lederer (1981) compared the speaking rates in two samples of recorded SI, the first performed at a conference, the second subsequently in simulated conditions, and found that both interpreters tended to maintain their own rate of speaking. Dejean le Féal (1978) also measured the speech rates of two interpreters over ten different SL passages, as shown in Table 3.

As seen in Table 3, Dejean le Féal found the rate of SL speech to vary between 102 and 170 wpm while the TL speaking (interpreter's) rate varied only from 89 to 130 wpm. If we disregard the very slow delivery of 102 wpm for text no. 9, we can see that the interpreter's speed does not increase proportionally with the speaker's. In fact, as if 'fighting' the speaker's accelerating pace, the interpreter brings her own rate of speaking down to 71%, 73%, and 74% of the rate of the SL (texts 10, 3, 6), while her speed approaches the Speaker's own most closely (87%) at the normal or optimal input rate of 120 wpm. We may reasonably conclude from this that external control over the rate of SI constitutes one of the main parameters of extreme SI conditions.

Table 3. Comparative rates of SL/TL speech (based on Dejean le Féal 1978)

Text #	Delivery speed (words per minute)		Interpreter's rate as percentage of speaker's
	Source discourse (French)	SI version (German)	
# 1	130	104	80%
# 2	120	104	87%
# 3	143	105	73%
# 4	136	114	84%
# 5	133	110	83%
# 6	148	109	74%
# 7	170	130	76%
# 8	143	108	76%
# 9	102	89	87%
#10	168	120	71%

7. Recited texts vs. improvised discourse

In SI the interpreter always produces her communication spontaneously and on the spur of the moment, 'accessing' the sense (content, message) of her communication from the SL discourse. Speakers, in contrast, very often do not formulate their communication on the podium, but simply recite a pre-prepared text (this is also often the situation in SI training and experiments[3]). As a rule, this additional difficulty in SI is perceived by the interpreter as a high SL speech rate, in which the discourse seems to unfold at an inhuman, machine-like speed. In an enlightening piece of empirical research, Karla Dejean le Féal (1978) showed that the faster delivery experienced by interpreters for recited texts is very often not real, but only a product of the interpreter's perception. Dejean discovered some curious facts about the temporal patterns of recited and improvised verbal communication and related them to certain internal mechanisms of SI. Let us deal with them in greater detail.

First, the interpreter's impression of faster SL input is created by certain specific chunking patterns (speech and pauses). Speech psychology and analysis distinguish two types of pauses: a syntactic pause appearing before a part of the sentence or a clause, and a hesitancy pause, connected with the search for a word by the speaker, often called the hesitation pause. The hesitation pause results from a delay in the mental process of internal programming for the production of an utterance. The hesitation pause may be either a pure (silent) pause, or a 'filled pause' when the speaker produces certain typical hesitant

sounds like 'er-er', 'hm', etc. Its duration varies, but the listener usually easily perceives a hesitation pause of between 500 and 1000 ms (0.5 to 1 second).

In addition, the act of speaking requires us to make physiological pauses to breathe in enough air for phonation. One would be tempted to assume that a pause for breath in speech would coincide with either a syntactic or hesitation pause, or both. Fodor, Bever and Garrett (1974) found that in fluent speech breathing tends to occur at syntactic boundaries; and that it does not coincide with hesitation pauses in non-fluent speech. The researchers explain these findings by the integration of respiration with sentence-planning, i.e. in a well-planned speech respiration patterns are also appropriately positioned.

As Dejean le Féal has shown, a prepared speech recited by a speaker at the rostrum is segmented quite differently from adlib or improvised delivery. In her French-to-German SI corpus, chunk length between pauses in the recited speech was usually seven words or more, rising to a maximum of 23 words, as compared to less than seven words and a maximum of nine in improvised speech. This created the impression of an abnormally high rate of speaking during recited speech when objectively there was no significant difference in delivery rates between reading and spontaneous speech as measured in wpm. To explain the effect of such source speech segmentation patterns as a factor of additional difficulty in SI, Dejean le Féal had to invoke the specific SI mechanisms involved in concurrent SL speech perception and TL speech production.

In order to fully grasp the significance of Dejean le Féal's conclusions, let us first recall some psychological assumptions about the role of short-term memory in speech perception. Psychologists maintain that several kinds of memory participate in the processing and interpretation of information obtained from sensory systems. A longer period of time may be required to process the sensory signal than the duration of the signal itself. A system of 'imprints' of sensory signals, the so-called iconic memory, comes to the rescue of the neural system in such cases. Lindsay and Norman (1972/1974) point out that the sensory system must keep an exact image of everything that affects the senses, since although most of this information may be found redundant, the sensory system is incapable of defining what aspects of input information may turn out to be significant. That can only be done by the interpreting systems. The system of iconic memory seems ideal for the purpose. It can maintain all the material for a short period, thus ensuring a chance of retrieval and choice for the image recognition processes (op.cit., 315). It has been empirically shown that 'the imprint' of the signal perceived weakens very quickly and practically disappears after about 0.5 seconds.

Further processing of the sensory signal is done in the short-term memory usually called the working memory. The working memory is constrained both by the time the signal can be kept in it and the amount of information being processed. Once in working memory, the information can be maintained from 3 to 30 seconds. Unless it is somehow rehearsed, its decay speed is a function of the weakening of the signal and the interference of new incoming information. As to the amount of information that can be processed together in human working memory, it is limited to approximately seven units according to George Miller's classic investigations into processing capacity (Miller 1956). Miller showed that, while the units processed may vary in nature and size – a syllable, a number, or separate words not connected by sense and context – working memory can retrieve some generalised traits of a unit and pass them on to long-term memory, within a limit of about seven (plus or minus two) units. In order to process a greater amount of information, the initial units must be reprocessed into higher-order units (by for instance grouping them together by sense).

According to Miller the number of words processed as a chunk in a discourse may be higher than seven, reaching up to nine words. Comprehension can be seen as the retrieval of sense from a chain of semantic units contained in a chain of words perceived by the senses. In the extreme conditions of SI, the speech string must be rapidly decoded into sense units (whose nature we will discuss later), and rapidly processed, to avoid the risk of a memory overload and the loss of part of the information received due to the limited information processing capacity of human working memory.

Dejean le Féal's work showed that when speech is generated by the speaker directly on the rostrum, it is delivered in chunks of no more than seven words, thus conforming to the requirements both of speech production (in any language) and to normal perception, since it then corresponds to human working memory capacity and causes no additional difficulty.

On the other hand, chunking into longer word sequences between pauses (in Dejean le Féal's corpus the number reached 23 words), as in recited text, inevitably causes additional difficulties, and in fact becomes a sort of additional 'noise' affecting the perception of SL speech by the interpreter.

Dejean le Féal also showed that in improvised speech, additional sentence stress falls on the word *following* the pause, i.e. on the word *which has been specially chosen and hence is important to the speaker*,[4] whereas this feature disappears in recited speech.

One more reason for the additional difficulty of interpreting recited speech is that it is less redundant than improvised speech. Let us recall the communi-

cation paths schematised in Figure 2 (Chapter 1): the Speaker usually aims her speech at the *Addressee* rather than at the primary Receiver, i.e. the interpreter. Although in theory speakers are aware that conference participants represent many different cultures and languages, in practice they disregard this when offered the chance to communicate through an interpreter, so that in drafting his contribution in advance (in what is in fact the formulation of the final product) a speaker unconsciously has in mind not the *listener*, but the *reader*. Such a discourse is always more densely packed with informational content than the spoken word.

This last point is well illustrated in an example from Dejean le Féal's corpus of a French text that had been previously written by the speaker but then discarded in favour of an improvised discourse. The topic is the development of the Paris metro:

Written version	**Improvisation on the same topic** (Additional redundancy introduced by the speaker during the delivery is shown in bold face)
…long de 177 km, le métro urbain comprend 16 lignes et 347 stations…	*…le réseau urbain,* ***contenu à l'intérieur de la ville de Paris, de l'ancienne ville de Paris, c'est-à-dire qui ne comporte pas la banlieue****, a une longueur de 177 km; il comporte 16 lignes* ***de métro*** *et 347 stations …*
…l'allongement des trains. Nous l'avons fait progressivement sur les lignes nos 1, 2, 4, 5, 10, 11 et 14 au cours de ces 10 dernières années. Cette solution nécessite parfois l'allongement des quais ce qui entraîne de très importants travaux de génie civil. Dans ce cas elle ne doit être utilisée qu'en dernier ressort et a d'ailleurs des limites…	*Alors en ce qui concerne l'allongement des trains, nous l'avons fait progressivement sur les lignes 1, 2, 4, 5, 10, 11 et 14 au cours de ces 10 dernières années.* ***Mais*** *cette solution nécessite le plus souvent l'allongement des quais, donc des travaux de génie* ***extrêmement*** *importants et* ***extrêmement onéreux****.* ***Comme par ailleurs, l'interstation moyenne du réseau est de 500 mètres,*** *cette politique a* ***forcément*** *des limites* ***dans Paris****.*

…D'une façon générale, en ce qui concerne le matériel roulant, des études sont faites pour un aménagement compatible avec une politique de promotion des transports (*silence du roulement, confort, éventuellement climatisation, etc.*)	*…D'une façon générale, en ce qui concerne le matériel roulant, les études et* ***les essais*** *sont faits pour un aménagement compatible avec une politique de promotion du transport.* ***Nous faisons beaucoup de recherches pour*** *le silence du roulement,* ***en particulier pour le matériel fer qui est beaucoup plus bruyant d'une façon générale que le matériel sur pneumatiques. Nous faisons des efforts d****e confort,* ***d'aménagement intérieur, d'éclairage*** *et également de climatisation,* ***mais surtout des effort****s pour l'utilisation de matériaux qui réduisent* ***considérablement*** *les risques d'incendie…*
et pour l'utilisation de matériaux réduisant les risques d'ignition…	

The last factor of additional difficulty for SI when a prepared text is read out instead of a speech being improvised is syntactic. The syntactic form of a written text is always more elaborate than that of the spoken word. Sentences are longer, there are subordinate and sub-subordinate clauses, the sentence 'depth' (see §42) becomes greater, syntactic (and sense) gaps between sense groups separated by clauses also become wider, and there is a complex system of interrelated predicates, as illustrated in some examples of recited speeches.

The first example is taken from an English speaker at the United Nations:

I. *I want to advance the thought that*
  II. *as force reductions proceed in Central Europe*
    III. *since we had some guardedly optimistic statements about the possibility*
      IV. *of this happening within a few years*
  II. *that the opportunity be taken*
    III. *to make a parallel step*
      IV. *towards the creation of some European agency or organisation*
        V. *perhaps just covering the Central European area*
      IV. *for, say, emergency relief or environmental control*
        V. *which could make use of the resources and skills*
          VI. *which are released by the partial disarmament measures,*

VI. *and which would also help to strengthen institutional links between East and West on an international basis*

I II III IV V VI

Our second example is an excerpt from a speech by a Panamanian delegate, also at the United Nations:

I. *Con sincero pesar me veo obligado a dejar constancia en esta solemne oportunidad, de que*
  II. *la nación panameña se encuentra poseída del sentimiento inquietante de que*
    III. *el reiterado desconocimiento en su propio territorio,*
      IV. *por parte de las Autoridades de la Zona del Canal de Panamá,*
    III. *del principio universalmente aceptado de que*
      IV. *toda persona tiene derecho sin discriminación alguna a igual salario por igual trabajo,*
    III. *constituye una barrera para la satisfacción de una de las condiciones vitales para su bienestar económico y para su tranquilidad social.*

I II III IV

For the sake of comparison, here is the transcript of an improvised speech (from Dejean le Féal's 1978 corpus). Close examination of this passage shows that the seemingly complex syntactic structure of the passage is in fact only imaginary, since many syntactic links are only indicated but not completed, and give the interpreter every right to form separate sentences.

> *Le transport maritime a évolué de façon considérable, et on voit d'ailleurs à quel point, par exemple, les systèmes de… le 'roll-on roll-off' sur la Manche, les systèmes de ferry maritimes sur toute une série de relations à l'intérieur de la… enfin, dans la Méditerranée, à quel point les containers maritimes pour ce qui concerne l'évolution du transport aérien de marchandises dont je vous parlais tout a l'heure, par exemple sur l'Atlantique Nord; on voit à quel point il y a eu un renouveau extrêmement important à tout point de vue du transport maritime, pas pour le paquebot, mais du transport – encore que les ferries, à certains égards, ce soit du, pas du paquebot, c'est un… un système particulier, un système particulier d'ailleurs où la véritable… ce qui est fondamental dans le ferry, ce n'est pas le… ce n'est pas le navire, c'est l'auto. En définitive, le succès du ferry est lié au succès que connaît la voiture particulière.*

The German interpreter of the last passage broke it into four separate sentences, apparently without any difficulty. The Russian interpreter broke the same discourse up into as many as six sentences. In the following chapters we will investigate the mechanisms of this process.

Chapter 3

The semantic and pragmatic structure of discourse

8. Word meaning

The simultaneous interpreter's activity is aimed at rendering the message conveyed by the SL discourse, in other words its meaning – or, to be more precise, *its semantic and pragmatic structure* (*SPS*). What is the semantic and sense structure of discourse? In order to answer this question let us first recall certain basic assumptions of linguistic semantics.

Words, the most visible units of natural human languages, have both a material (acoustic or graphic) form and a content, which we usually call their meanings. Both the form and content of words are specific to individual languages and are part of their structure. At the same time, some elements (to be discussed later), are common to all the world's languages, making interlingual communication possible. These common elements are to be found in the contents or meanings of words and may be termed semantic values. These can be classified as follows:

1. *categorial semantic values*, relating to abstract properties like time and space;
2. *grammatical meanings*, or language-specific combinatorial properties shared by a syntactic class of words (or part of speech) in a given language;
3. *lexical meanings,* i.e. meanings which are correlated with and reflect entities, states, properties and relations in the world (real or imaginary).

Grammatical meanings indirectly reflect abstract categories and spatial and temporal relations, while *lexical* meanings reflect entities, properties and relations of the world, i.e. specific objects of thought or referents, including real discrete natural phenomena and artefacts, imaginary objects like dragons or Martians, or abstract concepts. We can therefore subdivide word meanings into two classes: **categorial meanings** (abstract concepts and grammatical meanings) and **lexical meanings.**

Let us take a more detailed look at the structure of word meaning, focusing on features relevant for the further analysis of the SI mechanism. Our approach dictates the choice of a semantic theory which best captures the communicative requirements of language. As Arutyunova points out:

> [...] the semantic content of the word is formed under the impact of its role in a communication [...] Leaving aside pre-utterance relations, i.e. nomination[1] and the assertion of existence,[2] and assuming that the two basic communicative functions, identification of referents, and predication, which introduce the subject matter communicated, are regularly realised in a sentence, one might expect word meaning to be adapted to the performance of one or the other of these two functions. This kind of relation is, indeed, known to exist: nouns and pronouns specialise in performing the identifying function, while adjectives and verbs, according to their meaning type, usually assume the role of signifying expressions. Thus these word classes differ in their primary syntactic function, as also in their general semantic characteristics.
>
> (Arutyunova 1999: 1–2)

Not all categories of words in a language possess the full range of semantic features. Those that do include *common names* (or *appellatives*), used primarily for identification and classification, and *verbs* and *adjectives*, which typically function as predicators. The other word categories are devoid of conceptual content, their reference being either unique to a particular person, place or thing, as in the case of proper names, or entirely specified by the discourse context (and empty otherwise), as in the case of deictics, like pronouns, or 'shifters'. Links such as prepositions or conjunctions are devoid of both reference and signification (expression of conceptual content); their only function is to ensure the cohesion of the discourse.

Semantic studies addressing the semantically 'fully-fledged' words – common nouns, verbs and adjectives – have often focussed on polysemy and synonymy, which seem highly significant phenomena when such words are considered within the framework of the language system, but appear in quite a different light in a communicative approach to lexical semantics. In looking at their communicative use, or their role in cohesive discourse, we find that polysemy (hence, ambiguity) tends to disappear.[3] On the other hand, the requirement of co-reference to ensure cohesion in discourse results in a much broader understanding of *synonymy* in performance, in contrast to word meaning out of context.

Figure 4 represents the three dimensions of word meaning discussed so far – linguistic, denotational and conceptual.[4]

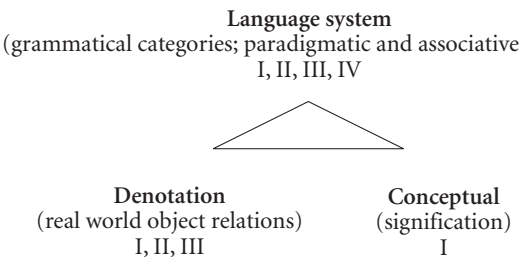


Figure 4. Three aspects of word meaning

Only one class of words, (*I*), comprising *common nouns, verbs, adjectives and adverbs,* have 'complete meaning' in that they display all three aspects, i.e. are capable of both signification and denotation and are correlated within the language system. The other three word classes are 'defective' in terms of this tridimensional representation, inasmuch as they lack a full range of aspects of meaning.

Proper names (*II*), names of persons, places, institutions, etc., only serve as labels to denote an object (animate or inanimate). Their 'conceptual potential' is very low: they may signify gender, or family relations in certain languages, or a geographical name, etc., but to a very limited degree, which is, as we will see later, not unimportant for SI. Words of this category are correlated within the language system; they denote but have no concept. If they acquire conceptual content (as *a Shylock*, or *a Babbit*, or *a Winnie the Pooh*) they cease to be proper names in the strict sense.

Deictics and pro-forms (*III*), such as pronouns, pro-verbs, pro-adverbs, etc., either have an indicative function, or ensure the cohesion of discourse: when substituted for a full notional word they simply reiterate the object of discourse, providing co-reference. Deictic words play a specific role in discourse: in an act of speech they indicate discourse co-ordinates relative to the 'I', 'here' and 'now' of the speaker. Words in this class are correlated within the language system and have a denotational function, denoting the referent in discourse.

The fourth class of words in a language are *links* (*IV*): prepositions and conjunctions. Their function is to ensure discourse cohesion. They are purely grammatical words and neither denote nor signify.

Postponing consideration of the role of 'defective' words (deictics, proper names and link words) in SI, we see that the greatest number of semantic properties belong to the fully-fledged *common names*. Two very important systemic semantic relations – polysemy and synonymy – are characteristic of

this class of words. Yet the two phenomena differ radically when considered within the language system and in performance (in discourse).

9. Polysemy and synonymy in discourse

Polysemy is a rare, indeed almost non-existent phenomenon in discourse. Even the most ambiguous words are comprehended first in one sense in discourse or in a conversation (Miller 1981: 131). Even words with very broad and fuzzy meanings, like the English *facilities, unit, center, thing*, French *cycle, chose*, Spanish *hecho, campo, cosa, oficio*, or Russian *работа, производство*, acquire specific meanings in discourse contexts.

As to synonymy, if we take the ability of a word to replace another in a given context as a basic feature of a synonym (Apresyan 1957), then the number of synonyms would grow enormously in performance as compared with their registered number in the dictionaries, i.e. in the language system. For example, Brueckner's French Contextuary (Brueckner 1975) shows a significantly greater number of words that become synonymous in two-word combinations. For the adjective *great*, Webster's Dictionary of Synonyms lists 19 synonyms (including the so-called analogs), while the Contextuary gives 85 word combinations where a synonymous word can be substituted for the word *great*. A similar situation occurs in Spanish, in which a current synonym dictionary (Sainz de Robles 1968)[5] lists 40 synonyms of the word *gran, grande*, while a dictionary of word combinations and usage (Moliner 1977)[6] quotes over 120 possible contextual synonyms of the word.

10. Componential analysis of meaning

Componential analysis of meaning assumes the possibility of a molecular approach to the meaning of the word, as if the whole meaning could be broken into separate semantic elements, atoms of meaning, whose combination results in the dictionary meaning of the word.[7] These parts are variously called (by different authors) *semes* (Greimas 1966; Pottier 1974; Gak 1971/1972, 1977, 1983), *semantic multipliers* (Apresyan 1974), or *semantic components*, which is the term we shall use henceforth.

To illustrate with a simple and familiar example: a piece of furniture used as a seat may be denoted by one of several words. Let us suppose that the meaning of each of them would contain two common semantic elements – A ('a piece of

furniture') and B ('seating human beings') – and one or more distinguishing semantic elements: a – 'with a back', b – 'with armrests', c – 'for one person', d – 'for two persons', e – 'for several people', f – 'with a soft seat', g – 'with a hard seat', h – 'with four legs', i – 'with three legs', etc. Then we will have:

AB – a seat (FR un siège, ES un sitio);
ABacgh – a chair (FR une chaise, ES una silla);
ABcgh/i – a stool (FR un tabouret, ES un taburete);
ABabcfg – an armchair (FR un fauteuil, ES un sillon);
ABabdf – a love seat, etc.

Research based on componential analysis has resulted in several semantic descriptions of word meaning, one of the schools being the 'Meaning ⇔ Text' system (Mel'chuk 1974). Another influential framework was developed by Roger Schank (Schank 1973), who suggested 14 elementary 'ACT'-type semes and several more 'STATE'-type semes, with a number of combinatory rules, or 'rules of conceptual dependency', with which it would be possible to represent 'all actions underlying natural language' (Schank 1973: 228).[8]

Both Mel'chuk and Schank propose analytically established elementary semantic components which they label with special symbols; for example, in Mel'chuk's system, Magn = 'a high degree of a certain property' (Magn *rain* = it's raining cats and dogs, it's pouring); or in Schank's system, TRANS = 'movement from one subject to another'. Anna Wierzbicka (1987, 1996, 1999), in contrast, proposes the use of *semantic primitives*, such that a limited number of 'basic words' may describe word meanings in the entire semantic system of a language.

However, the analysis of the corpus of SI empirical studies demonstrates that human comprehension is not necessarily based entirely on 'deep' decomposition of word meanings into elementary semantic components. The depth of decomposition is rather a matter of heuristics and often depends on the specific correlation (closeness) of the semantic systems of the two languages involved in a given SI combination. The significance of componential analysis for SI lies elsewhere, as we will show below.

11. Semantic agreement: A combinatory law of discourse

Componential semantic analysis of meaning led to the discovery of a basic pattern according to which words combine in utterances in discourse. It turns

out that combinatory rules depend on the semantic structural composition of word meanings in an utterance.

Semanticists have developed the notion of *semantic agreement* (Greimas 1966; Gak 1971/19722, 1977; Apresyan 1974) to denote the iteration of semes in words that semantically 'agree' in an utterance.

In basic classroom grammars, the notion of 'agreement' concerns relations between a noun and its attributes (e.g. in Russian, adjectives and numerals agree with the noun in case, number and gender; possessive pronouns agree with their nouns in several languages) or between the verb as a predicate which may 'agree' with the noun functioning as the subject of the sentence (in person and number, for example, in Russian, and also in gender when the verb is used in its past tense form).

This traditional understanding of 'agreement' to characterise these relations between words where '[in Russian] the dependent word in an utterance borrows its forms of gender, number and case (and sometimes, person) from the governing word' (Shvedova 1970:488) turned out to be wrong in its essence, since it is not *forms* that are borrowed, but only the meaning of the grammatical form. It was replaced later with the notion of agreement as the iteration of semes contained in the words that 'agree between themselves' (Gak 1972; Apresyan 1974). Apparently, when speaking about 'agreement', traditional grammars mean the repeated marking of grammatical (categorial) meanings (gender, case, person or number) in an utterance. But whereas 'grammatical agreement' is marked in discourse only in a limited way and not in all languages, *semantic agreement* emerges as the main law of discourse cohesion: 'a basic law regulating the correct understanding of texts by the hearer' (Apresyan 1974:14); or 'a basic law of combining words semantically' (Gak 1977:23). This basic combinatory law has been formulated as follows:

> [...] for two words to combine correctly they should contain, besides specific semes differentiating their meanings, a common seme; or at least they should not contain incompatible semes.[9] The common seme may be of a categorial nature [...] However, not only a categorial seme, but any seme common to at least two semantemes [– *i.e. configurations of semantic components that combine into the meaning of a word* –]' can become a linking component in discourse. (Gak 1977:23)

Apresyan makes the following distinction between grammatical and semantic agreement:

> Word A, in grammatical agreement with word B, borrows certain elements of meaning from the latter in a given context, while words A and B in semantic

> agreement with one another do not borrow elements of sense from each other in the text, but already share them in the lexicon. (Apresyan 1974: 14)

However, as he indicates later, the notion of agreement, as the iteration of certain elements of linguistic information, can be generalised in such a way that grammatical and semantic agreement may be treated as different instances of the same phenomenon.

This kind of generalisation acquires particular significance for discourse. The notion of agreement would then *denote* the iteration of any semantic component, whether categorial or lexical, both in syntactically bound words (within a sentence) and in passages of discourse longer than a single utterance. The categorial semantic component differs from the lexical one only in the degree of generalisation, or level of abstraction. There is no impassable border between them, reflecting another linguistic law: the possibility of expressing, or explicating, any categorial meaning by lexical means, but not vice versa: 'there is no grammatical seme that would not have an equivalent lexical seme, but not vice versa' (Shendels 1982: 78). We know of the phenomenon of delexicalisation of certain meanings in a language, or grammaticalisation of certain categories, of meanings that are unstable, or transitional in their level of abstraction between the lexical and the grammatical. Moreover, as some linguists have pointed out (Katznelson 1972; Arutyunova 1976), categorial grammatical meanings are subsumed in more abstract categories at spatial-object level and factual-temporal level.[10]

The notion of semantic agreement may be somewhat expanded if we add to the mere iteration of semantic components the effect of conjoint usage of certain semantic elements within a frame, or a script, which may cover the notion of absence of 'incompatible semes' (see Gak 1977). Taking the notion of agreement to cover the whole range of iterations of different types of semantic components, from the most abstract components like motion, space, or time, through grammatical components like *tense, aspect*, *gender, number, case* (in languages where such components are marked grammatically) to lexical components (also on different levels of abstraction), it is clear that semantics plays a central role in agreement. If we are to understand agreement as a feature of discourse (a 'grammar of speech') we can easily apply this notion to the English language since agreement thus defined, as the iteration of semantic and grammatical components of meaning, is as pervasive in English as it is in Russian.

Taking semantic agreement to be a general linguistic law of discourse, it would seem to follow that the foregrounding of a given semantic component

or limited configuration of such components in discourse must influence the meaning of the word as used in the discourse, significantly narrowing down its meaning. Componential analysis thus leads not only to a re-interpretation of the concept of linguistic agreement as a basic combinatory rule for words, but also makes it clear why polysemy tends to disappear in discourse. When only a certain set of semantic components is made ostensive,[11] the non-relevant components (those that are not iterated in other words of the utterance or surrounding context) go into the background, i.e. are not realised in the given discourse. Putting it more plainly, the meaning of a word within a discourse is not the same as its meaning as recorded in the lexicon, but is only its foregrounded part, specific for the given context (or some usually limited range of contexts). This meaning, in contrast to the abstract meaning of the word as defined in the vocabulary of the language, is what linguists often call its **contextual or pragmatic meaning**.

Thus, in our analysis of the psycholinguistic mechanisms of SI we are going to rely on the following two principles of semantics:

1. recognising the divisibility of word meaning into its atoms, semes, or *semantic components* (SC), and understanding the complex structure of meaning as a *configuration* (ordered bunch) *of semantic components* (CSC);
2. understanding combinatory rules as semantic in nature.

12. Semantic redundancy in discourse

The law of semantic agreement as a basic determinant of the combinatory properties of words in an utterance results in the within-utterance iteration of SCs. But iteration of components in a message means that the message is *redundant*.

Redundancy is known to boil down to (1) the iteration of the message elements, and (2) their interdependence.

> Contextual dependencies mean that the message source is repeating itself [...:] a large degree of interdependence among the successive units of a language means that parts of the message can be lost or distorted without causing a disruption of communication [...]. (Miller 1963: 103)

We have already seen one factor of redundancy in an utterance: semantic agreement. At the level of the whole discourse, it is also known that the units of the message tend to repeat themselves over longer stretches of discourse than a single utterance. This phenomenon has come to be known as *co-*

reference, which is one of the basic cohesive features of a discourse, in that 'the stability of the text as a system is upheld via a continuity of occurrences' (Beaugrande & Dressler 1981/1986:48). The recurring expressions keep the same reference, i.e. designate the same entity in the world of discourse. To create this stability through continuity, the speaker employs a number of means to mark co-reference: the use of the *same word* throughout the text, or of its *synonyms* (recall that synonymy in discourse is contextually multiplied as against synonymy in the dictionary) and *paraphrases;* shifting the word-component to a different word class or part of speech; the use of *pro-forms* for the semantically self-contained words (nouns, adjectives, verbs and adverbs), including *pronouns* (personal, possessive, relative, etc.) and also *pro-verbs* (as *do*), *pro-adverbs*, *pro-modifiers,* and *pro-complements* like *do, so, such*, etc. which may co-refer to a whole block of content; the use of *deictics*; and other devices. The phenomenon of cohesive co-reference has been so thoroughly studied in text linguistics that it requires no further elaboration here (see Beaugrande & Dressler 1981/1986).

Thus, the first aspect of redundancy – iteration of discourse elements – turns out to be typical for both isolated utterances and coherent discourse.

The second aspect of redundancy – the interdependence of units of the text – can also be traced in both an utterance and a discourse.

Let us first analyse the utterance. Interdependence in an utterance takes the form of grammatical or semantic *government*, usually defined as a dependency such that the categorial properties of the governing word determine the appearance of a dependent word in a certain grammatical form (*grammatical government*), or the appearance of a certain word with an appropriate meaning (*semantic government*, also known as semantic valency).

According to Apresyan, 'semantic valencies are a direct consequence of the lexical meaning of the word [...] Their content, or the role ascribed to them [...], are part of their lexical meaning' (1974:120). Apresyan quotes a case of a word with a valency of five, which is rare, maybe even unique among Russian words.[12] The word is *арендовать* (the Russian equivalent of to *rent*):

> *A rents C* roughly signifies that a certain person A acquires the right to use property C from another person B for the period of time T for the remuneration D. Consequently, the following 'participants in the situation', or semantic agents ('actants') are meaningful for the situation of RENTING: the subject (one who rents), the first object of RENT (that which is being rented), counterpart (one from whom something is rented), the second object (payment) and the period (for how long something is rented). These agents are sufficient and necessary, in other words they fully describe the situation

> of renting; any change in their composition and number would result in its transformation into another situation. For example, the removal of the period, with all the other elements intact, would transform the situation into a related, yet not identical, situation of PURCHASE/SALE; the removal of the first object results, with appropriate changes, in a situation of a LOAN; if the period and second object are removed, a situation of TRANSFER is obtained, etc. (ibid.)

Semantic government (*valency*) differs from *syntactic government*.[13] Some languages allow the use of several synonymous syntactic structures bearing the same semantic value:

> *John gave my brother the books / John gave the books to my brother*
> *to present something to a person / to present a person with something*
> *he blamed the accident on John / he blamed John for the accident*

Both semantic and syntactic government may be strong or weak, if by the term 'strong' we understand its more obligatory nature. Both semantic and syntactic government may be generalised within the framework of discourse analysis as the iteration of semantic (categorial and lexical) components.

Government[14] may be regarded as the ability of a word meaning to attract other (specific) word meanings, as a kind of a keyhole which only a key of a certain configuration will fit. Semantic government is thus a semantic dependency, a constraint on the word-combinatory rules operating within the utterance.

A more general model of semantic constraints valid for discourse (passages longer than an utterance) has been proposed by Wallace Chafe (Chafe 1972). Chafe observes that any coherent discourse contains numerous sequences of the type $X \Rightarrow Y$, to be read 'the presence of semantic element X requires the accompaniment of semantic element Y', or 'X entails Y'. This formula is valid for a coherent discourse, since 'constraints that are present at the beginning of a discourse are continually modified by the succession of sentences in that discourse' (Chafe 1972:24). He then suggests the following formalisation of this contextual rule:

(1) $W : X \Rightarrow Y : Z$

where W is the 'initiator' of the constraint (dependency) $X \Rightarrow Y$, while Z is its 'terminator'. The formula reads as follows: 'the presence of the semantic element W introduces the constraint $X \Rightarrow Y$, which remains in force up to the point where Z appears, where it will then evaporate' (op. cit.:48). This contextual rule could justifiably be called Chafe's rule.

This general rule may take varying particular forms, depending on the kind of semantic element. The example suggested by Chafe illustrates the use of the grammatical category of tense as a particular semantic constraint.

(1) a.

V	:	V	⇒	α tense :	V
adverbial		∼ generic			adverbial
temporal					temporal
α tense					∼ α tense

This can be read as follows: 'a temporal adverb causes succeeding verbs to acquire its particular tense, up to the point where another temporal adverb introduces a different tense' (op. cit.: 50) and is illustrated by the following discourse passage:

a.	*I went to a concert* ***last night****.*	(past)
b.	*They played Beethoven's Second.*	(past)
c.	*You don't hear that very often.*	(generic)
d.	*I enjoyed it.*	(past)
e.	***Next Friday*** *I'm going to another concert.*	(future)
f.	*They're playing something by Stravinsky.*	(future)

where *last night* is the initiator of the semantic dependency and *next Friday* is its terminator. This contextual rule applies to many contextual semantic dependencies and may be justifiably considered universal. It can always be expressed in the form of a particular rule (as 1a). In fact all syntactic rules may be regarded as particular contextual rules of semantic dependency. Both semantic government and the agreement of tenses in the main and subordinate clauses may be considered as particular forms of the general contextual rule (1). Yet the explanation of grammatical dependencies in an utterance would not in itself have required the introduction of a new contextual rule. The significance of Chafe's rule (1) lies in that it explains semantic dependencies reaching beyond a single utterance to the extended discourse. The possibility of its application to known rules of grammar only serves to emphasise its wide applicability. Chafe's rule is a good generalisation of a number of discourse regularities, including deictic, evaluative, modal, factive, and pragmatic features. Some examples of specific contextual rules based on rule (1) and derived from the analysis of political statements as an object of SI will be given later.

Finally, the *progressive* orientation[15] of the contextual rule of semantic constraints makes it especially appropriate for the analysis of semantic redundancy in connection with SI.

Table 4. Redundancy factors in an utterance and a discourse: (1) objective (textual) redundancy

Redundancy factor (**information theory**)	**Representation**		**Philosophical essence**
	utterance level	discourse level	
iteration	semantic agreement	co-reference	probability
interdependency	semantic government	contextual semantic constraint	determinacy

The difference between semantic agreement and co-reference, which engender reiteration of semantic elements, and government and contextual semantic constraints, which create dependencies, reflects the qualitative difference between probability and determination (transition of quantity into quality): 'the transition of probability striving to culminate in unambiguous determination is based on the process of ever greater specification and limitation of the class of events for which the probability is determined' (Stepanov 1970: 120).

Thus, combining the phenomena of probability, observed mostly in the lexical SC's and their configurations, and of determination, to be seen basically in categorial SC's and their configurations, semantic redundancy emerges as the key factor underlying the psycholinguistic mechanism of message probability anticipation. This can be expressed in a table (Table 4).

13. Semantic redundancy in discourse: An example

Redundancy in the semantic structure of discourse may be illustrated in the following opening passage of a statement by a delegate to the United Nations Security Council:

> *Mr. President,*
> *I would like to take this opportunity to congratulate you on your assumption of office and to express admiration for the excellent manner in which your distinguished predecessor led the Council during the month of August. I am confident that his work has laid a sound basis for carrying the present debate forward to a positive conclusion under your own able and distinguished leadership. My delegation has from the beginning of this debate consistently worked toward an outcome which would reflect a consensus among the Council. We are gratified that in the end this goal was achieved. We have been deeply impressed by the tireless and pa-*

tient efforts of those delegations which worked so hard to bridge the gap separating the parties in order to find a generally acceptable solution.

This text, which seems at first glance to be rather empty of content, as all such texts typically are, is redundant enough to serve as an example of what was discussed in the previous paragraph. Let us present part of this text in a somewhat different form, more appropriate for an analysis of its semantic structure. For convenience, we will attach numbers to word groups.

1	*Mr.* ***President,***		
2.1	*I*	**3**.1	*I*
2.2	*would like*	3.2	*am confident that*
2.3	*to take this opportunity*	3.3	*his*
2.4	*to congratulate*	3.4	*work*
2.5	***you***	3.5	*has laid a sound basis*
2.6	*on* ***your***	3.6	*for carrying. . . . forward*
2.7	*assumption*	3.7	*the present debate*
2.8	*of* ***office***	3.8	*to a positive conclusion*
2.9	*and to express admiration*	3.9	*under* ***your own***
2.10	*for the excellent manner*	3.10	*able and distinguished*
2.11	*in which*	3.11	***leadership***
2.12	***your***		
2.13	*distinguished*		
2.14	***predecessor***		
2.15	***led the Council***		
2.16	*during the month of August*		

This discourse illustrates all four types of utterance- and discourse-level redundancy: the iteration of individual or clustered SCs, within-utterance agreement and government, and within-discourse co-reference and contextual semantic constraints.

1. **Semantic agreement:** in utterance [2] we find the semantic components EXPRESSION OF SYMPATHETIC PLEASURE, in *congratulate* and *express admiration*; and POSITIVE EVALUATION in *congratulate, express admiration* and *excellent manner*.
2. **Semantic government:** this feature can be traced in word combinations like *laid a. . . basis, sound basis, carrying the debate forward to a . . . conclusion. . .*
3. **Co-reference** is abundant throughout the passage, for example in the numerous expressions referring to the same entity or one inherently connected with it: *President* (1), *you* (2.5), *your office* (2.8), *your* (2.12), *pre-*

decessor (2.14), *led* (=presided over) the Council, (2.15), *leadership* (3.11), and the pronouns *you* (2.5), *your* (2.6), under *your own* (3/9).
Of particular insistence is the repetition of the semantic component of POSITIVE EVALUATION, as in … *opportunity to congratulate you*… *express admiration*… *excellent manner*, *sound basis*, *positive conclusion*, – and later in the speech …: *we are gratified*…, *we have been deeply impressed*…, *tireless and patient efforts*, etc.).

4. **Contextual semantic constraints:** this passage conforms in particular to the rule that *when the verb of the main clause* expresses *a positive/negative value judgement about the proposition in the complementary clause, all words expressing value judgement in it must also contain positive/negative SC's.* For example, in the utterance '*We have been deeply* ***impressed*** *// by the* ***tireless*** *and* ***patient*** *efforts of those delegations which* ***worked so hard*** *to* ***bridge*** *the gap separating the parties to* ***find a*** *generally acceptable solution*'. Compare the internally contradictory nature of the following: **We have been deeply* ***impressed*** *// by the* ***haphazard*** *efforts of those delegations which* ***worked so poorly*** *in order to* ***avert a solution.***

To illustrate the high level of redundancy of this text, we might concoct the following telegram using the key words comprising the referential and evaluative structure of the passage, as an example of a natural way of reducing the redundancy of the message:

> COUNCIL PRESIDENT CONGRATULATE YOU YOUR PREDECESSOR POSITIVE CONCLUSION STOP GRATIFIED CONSENSUS ACHIEVED COMMA EFFORTS DELEGATIONS FIND SOLUTION STOP

Yet even this text is redundant, for at least the main topic and the main value judgment component are repeated three times each: POSITIVE CONCLUSION, CONSENSUS, SOLUTION and also CONGRATULATE, POSITIVE, GRATIFIED…

Compressing the discourse to the size of an average telegram shows how redundant a typical delegate's statement can be, while extracting its basic message. If we agree that the telegram does not distort the essence of the delegate's statement, we can derive the sense of this message from it: a positive assessment of the work of the Council and the fact that it managed to find a consensus on the issue discussed.

Chapter 4

Semantic structure and objective semantic redundancy

14. The concept of sense

Having considered the componential structure of meaning and rules of semantic agreement, we can now deal with the concept of sense, which has been highlighted, as we noted, by the Paris school of interpreting theory. Linguists often use the word *sense* to denote the contextual meaning of a discourse, in other words a configuration of SCs foregrounded in discourse. There are, however, valid arguments against treating *sense* as a purely linguistic concept.

To begin with, the word *sense* itself is ambiguous in usage, as reflected in expressions like 'In what *sense* are you using this word?' (meaning 'what do you mean?'); 'I cannot make out the *sense* of what he said'; 'Where was the *sense* in acting this way?'. Dictionaries give the following definitions of the word *sense,* among others:

– *something to be grasped, comprehended, known: as* [...] *an interpretation that may be given to a group of words forming a passage: the meaning of such a group as a functional unit* [...]
– *general or essential meaning of an utterance*
– *meaning that is rational or intelligible*
– *Syn. common sense, good sense, horse sense, judgment, wisdom ... an accustomed steady ability to judge and decide between possible courses with intelligence and soundness* (Webster's Dictionary)

A 'sense' of something as a duty is the belief that it is valuable or important, whereas a 'sense' of freedom is a feeling of freedom; a sense may also be *a natural ability or talent for something* or the *ability to make a good judgment and to behave in a practical and reasonable way* (Collins Cobuild Dictionary). This dictionary also quotes phrases like *make sense, talk sense, there is no sense in..., come to one's senses*, etc. There are therefore good grounds for recognising 'sense' as distinct from 'meaning'.

Can a word like *problem*, for example, be said to have a sense? *Problem* is defined in Webster's as *…a question raised* […] *for inquiry, consideration, discussion, decision, or solution; a proposition in mathematics or physics; an unsettled matter demanding solution or decision and usually requiring considerable thought or skill; something that is a source of usually considerable difficulty, perplexity*, etc. Taken in isolation, the word does not have any sense. Indeed, if you just say 'problem' as neutrally as you can: '*…problem…*' the utterance would be senseless. A hearer's natural reaction would be '*What problem? What are you talking about*?' Even if you say '*serious problem*', the response could only be more questions: '*Where is the problem? What is it?* and even '*What do you actually mean?*

The sense of such a word only appears within an utterance, as for example *I would now like to touch on a serious problem bedeviling the developing countries* […]. Only now, when we have introduced a *context*, when *predication* has appeared, i.e. when the utterance has been related to a state of affairs in the world, and there is a hint at the *situation of communication* (evidently, since this is a part of a public statement) and we have a presumed *theme* of discourse (the situation of the developing countries, for example), only now do we have a chance to retrieve the *sense* of the utterance and somehow understand the speaker, because we now know that

1. there is a problem requiring solution,
2. this problem is serious,
3. the problem means difficulties for the developing countries; and
4. the speaker intends to discuss it.

The hearer now has a context, via a complete utterance (a linguistic factor); the act of predication refers that problem to the world (a linguistic factor); the content of the word is related to a certain topic (an extralinguistic factor, linked to the hearer's background knowledge of the world, from where the speaker sort of cuts out a fragment, so far without precise boundaries, within which the hearer can place the contextual meaning of the word); and, finally, there has appeared, although not yet in a clear-cut form, a hint to the communicative situation (an extralinguistic factor).

This is a case of multiple interaction: between linguistic factors, which reveal the contextual meaning of a word through the foregrounding of semantic components based on their joint appearance, and extralinguistic factors; and between verbal mental processing and non-verbal processes involving the hearer's knowledge of the world and of the communicative situation (based on a hint at a typical, standard situation of communication).

Thus, if we classify *speech* itself (*discourse*) as a linguistic phenomenon (although speech is not exclusively an object of linguistic studies: in contrast to *language*, it also belongs, for example, to psychology, acoustics, the physiology of higher neural activity, medicine, etc.), we can say that *contextual meaning* falls within the purview of linguistics, i.e. is a *linguistic* factor, while *sense* goes beyond purely linguistic concepts and emerges as an *extra-linguistic* factor, a result of interaction between the contextual meaning of the word in discourse and cognitive factors, such as one's knowledge of the world and acquaintance with the communicative situation.

Natalie Slyusareva was among the first Russian linguists to discuss the nature of sense as an extralinguistic phenomenon representing a sum total of linkages between the concept as a category of thought and other notions and ideas (Slyusareva 1963, 1967). As mentioned above, a basic difference between sense and meaning has been recognised by the Paris school of the '*théorie du sens*' (Seleskovitch & Lederer 1989), although, in our opinion, they overestimate the autonomy of sense. Lederer suggests that sense is formed as a result of interaction between the 'pragmatic meaning' (contextual meaning, in our terminology) and cognitive information to be found in the hearer's long-term memory, which also includes knowledge of the situation (Lederer 1978).

Zvegintsev is another Russian linguist who sees sense as the result of interaction of the significant content of a sentence with the situational requirements of the act of communication (Zvegintsev 1976: 193). According to Zvegintsev, the significant content of a sentence, being a result of an act of human cognition, necessarily includes the idea underlying it. 'The sense content [...] is always a result of a creative mental effort, since it is formed in a unique situation, and embodies the correlation of the given situation (or entities that form it) with the internal mental model of the world' (Zvegintsev 1973: 176–177). And further on: 'the sense leaves the language where it is, but it liberates human thought from the slavery of linguistic meanings, and even FROM the structure of the language as a whole, enabling one to build knowledge systems above and beyond language barriers' (op. cit.: 178).

Another outstanding Russian psychologist and psycholinguist, Nikolai I. Zhinkin, also regards sense as a result of human verbal and mental activity. He writes: 'besides an alphabet of words, speech has an alphabet of two-word combinations [...] A separate word is senseless, but a word combination starts a sequence, by continuing which you may obtain sense [...] 'A measure of information change in the two combining words makes a minimal unit of sense' (Zhinkin 1970: 76–77).

As Zhinkin shows, the operation of sense formation is carried out in human working memory, which at all its levels is 'not just memory, but planning and anticipating memory' (op. cit.: 72). The working memory, according to Zhinkin, is a 'complex two-tier formation fusing the higher functions of language and the initial functions of the intellect. The major operation consists of re-encoding words into sense at the input end, and sense into words at the output end…' (op. cit.: 83).

We will return to the problem of sense and its role in SI mechanisms, but let us first complete our account of the semantic content of discourse, and in particular, that of a message to be rendered into TL through simultaneous conference interpretation.

15. Theme of communication, object of an utterance, and foregrounding

The *Theme–Rheme* (or *Topic–Comment*) distinction was postulated by linguists who were dissatisfied with formal grammatical parsing of a sentence as a basis for analysing the communicative structure of an *utterance* (which is contextual, occurring only in speech):

> If formal parsing analyses the sentence structure into its grammatical elements, actual parsing[1] reveals the way the sentence becomes a part of a real world context on the basis of which it appears […] (Mathesius 1967a: 239)

> […] to understand what the speaker wants to say in his sentence, we should clearly distinguish between what he is talking about and what he is saying about it. Thus major parts of the sentence are determined from the point of its sense structure. The sentence as an expression of the actual relation to the facts of the outside world is an utterance, and therefore what we *talk about* is called the basis of the utterance and what we *say about it* is its focus. (op. cit.: 484)

Later, the 'basis of the utterance' was termed the Theme, and its focus, the Rheme (Topic and Comment in the Anglo-Saxon linguistic tradition). Some linguists have pointed out the similarity between the definitions of theme and rheme, on the one hand, and those of the subject and predicate of a sentence (as defined by ancient classical philosophers and philologists), as respectively 'what is being talked about in the sentence' and 'what is being said about the subject'. To quote Hockett: 'The speaker announces a topic and then says something about it […] In English and the familiar languages of Europe, topics are subjects and comments are predicates' (Hockett 1958: 201).[2]

So, in an analysis of the dynamics of communication, the concepts of *theme* and *rheme* in linguistics have become a more or less static reflection of the movement of thought from the initial point of an utterance to its focus, to the objective of communication, to something for the sake of which the utterance is pronounced.

Let us take an example from the official Russian record (translated from English) of the UN Security Council Meeting of February 7, 1977, which contains the following sentence (with my English word-for-word gloss):

> *Я думаю, что мы все согласны с тем, что агрессия*
> I think that we all agree with that that aggression
> *де-факто имела место в Котону.*
> de facto took place in Cotonou.

According to the Russian communicative word order, where the major semantic focus or rheme is usually towards the end of an utterance, the Russian sentence is a reply to the question '*Where has the aggression taken place?*' But the subject discussed by the Security Council is an attack by a group of mercenaries on Cotonou, the capital of Benin, and the Council is in the process of establishing whether the event constitutes an act of aggression. The original utterance goes like this:

> *I believe that we all agree that de facto an aggression has taken place at Cotonou.*

The sense of the English indefinite article 'an' should have been rendered in Russian by the word order, i.e. by placing the word 'агрессия' in the final position in the utterance. The English sentence, in contrast to the Russian one, answers the question '*What has taken place at Cotonou?*' What occurred in interpretation was a distortion of the sense of the utterance due to the displacement of its communicative focus. Only by correcting the word order could the official record have conveyed the meaning of the discourse. This is confirmed by the very next utterance:

> *Now we must do all we can to establish who the aggressor is.*

On the basis of work in semantics over the last half century, and in particular the recognition of topicalisation, we can now identify theme and rheme as universal concepts of the sense structure[3] of discourse. Topicalisation converts the non-linear, non-discrete mental representation of a fragment of the world discussed in a discourse into an ordered linear sequence of discrete components, by means of an ordered set of linguistic units (Chernyakhovskaya 1983).

Topicalisation is a way of transforming the original thought, first present in the mind as a matrix, into a discourse consisting of discrete units and developing through time, as a way of rendering the speaker's communicative intent. Mathesius writes:

> a regular [word-]order is one in which the initial part of the sentence is taken to be the starting point while its end is the focus of the sentence. This sequence may be called an objective one, since in this case we move from the known to the unknown, which facilitates the understanding of what is being uttered to the hearer. But the reverse order also exists: first the focus of the utterance is pronounced, followed by the starting point. This order is subjective: here the speaker does not pay attention to the natural way from known to unknown, for he is so carried away by the focus of the utterance that he places it first. Therefore this type of order adds particular significance to the focus of the utterance [...]. (1967: 244)

Thus the rheme is a way of bringing the subject matter of the utterance to the fore, either by simply indicating its existence (either its existence in general, or the availability of the entity in the given situation), or through characterisation, i.e. a description of some aspect of the object of communication. The simultaneous interpreter, however, is concerned with the foregrounding of subject matter in a coherent discourse, not in an isolated utterance.

In this perspective – the unfolding of coherent discourse – theme and rheme differ radically in nature. While the rheme is a way of foregrounding the object of communication in each successive discrete utterance, the theme, as the object of thought about which the communication is produced, remains the same from one utterance to the next, being merely enriched with new features and characteristics. As Zhinkin puts it, 'the subject of communication is only indicated or designated, or is simply presupposed in each proposition; but the aim of the communication is to produce as complete as possible a notion of that subject in the hearer (reader)' (1956: 146–147).

Strictly speaking, when considering the message as it unfolds over time and the mechanism of gradual comprehension of coherent discourse as it develops, and given the limitations of human working memory, it would probably be more appropriate to speak not about the theme and the rheme as the two parts of the utterance but rather, following Chafe (1972: 41–70), about the foregrounding of the object of thought, and the foregrounded part of the discourse.

Chafe compares the introduction of new objects of thought into the discourse with the foregrounding (bringing to the fore) of new lexical units and their semantic content. The basic idea is that at any one point in the

discourse there are certain concepts which are in the foreground of the minds of the participants in the discourse – concepts which are, so to speak, in sharp focus at that point. We can think of what is going on in a discourse as if it described events and situations unfolding on a stage. We could then say that at any particular point in the discourse there are certain things which are 'on stage'. We shall say that whatever is on stage is 'foregrounded' (Chafe 1972: 50).

Chafe points out that only objects and entities that have already been brought on stage can be referred to later in discourse by means of pronouns (co-reference) or definite expressions. Alternatively, 'bringing on stage' (*staging*, in Chafe's terms) should be viewed as a dynamic process, which also allows for items to retreat from the limelight, or even from the stage altogether, as the discourse develops. This makes the idea of staging quite productive for the analysis of coherent oral communications (oral discourses), the usual objects of SI. For example, it explains co-reference, i.e. the repeated mention of important referents and other components of thematic structure: a component which continues to play a role in the communication is repeatedly brought on stage, preventing it from fading or being supplanted in memory by newer components in the discourse.

Chafe shows that the 'I' of the speaker always remains foregrounded. When a speaker quotes from another source (that is, produces a quotation in direct speech), he provisionally retreats from the stage to place another speaker in the foreground, which explains the instant internal mobilisation intuitively experienced by the simultaneous interpreter, who feels a special responsibility for producing a correct rendering of the quotation.

Now, assuming the rheme to be a foregrounding element in an utterance, we will use the terms *theme* and *rheme* to show the qualitative difference between these two components in psycholinguistic terms. As Brchakova puts it, 'the essence of a coherent discourse lies in the transfer of information about the identical theme from one segment of the text to another one' (1979: 260). Let us say that the theme remains the same (though not exactly identical) throughout the discourse, or a part of the discourse. The rheme, on the contrary, is transient, and once it occurs, it immediately disappears into the actual discourse, remaining fixed only in written or other records and in linguistic analyses.

Vilem Mathesius, the originator of the 'topicalisation' idea, noted that 'the cohesion of a paragraph is brought about by its basic theme, piercing it through, and actual themes of separate sentences are organically linked with it [. . .]' (Mathesius 1967b: 521).

Given the universal nature of the concepts of theme and rheme, we can use them to analyse the semantic structure of a discourse into two basic substructures, in which the theme represents the cumulative and the rheme the dynamic aspect of communication. SI is typically performed on oral discourses with a semantic structure in which a foregrounding element plays a role at the point of its first appearance in an utterance, after which it becomes part of the theme of the discourse as a whole, which is constructed step by step in the interpreter's mind. Let us note that the rheme, as an element introducing the sense of the message,[4] in contrast to the *extralinguistic sense*, remains a *linguistic* concept. The rheme has a verbal representation, while the sense is a non-discrete integral *mental* representation of a fragment of the world. Bearing in mind that in speech, word meaning undergoes considerable change as it turns into contextual meaning (i.e. into a configuration of foregrounded semantic components, consisting both of components of the basic lexical meanings and those introduced in discourse), the rheme as the introducer of sense is a configuration of SCs that brings out the non-discrete sense of the utterance as a (sometimes fuzzy) mental representation of a fragment of the world.

If the *rheme* is a 'foregrounder', then rhematisation is a path to the sense of the message, a way of sense formation. That makes it possible to analyse the semantic structure of the discourse as a combination of semantic substructure (i.e. the componential structure derived from word meanings) and sense substructure (the foregrounded contextual meanings in combination with background knowledge).

16. The semantic structure of discourse and its basic components

The discourse analysis and text-linguistics communities have developed their own methods of text analysis, but these are designed for written texts, complete in structure, and are therefore not fully applicable to an oral communication developing in time, the typical object of SI. Nevertheless, to examine the semantic structure of an oral discourse (a speech), we have first to imagine such a discourse in its completed form.

Such a structure is of necessity based on a referential network, a network of denotations, or to be more precise, a structure made up of entities, properties and relations (facts and events); we say 'of necessity', because any communication must be 'about something', must reflect a fragment of the overall 'picture of the world' which is an object of the communication.

This referential substructure could be described as a network of entities, properties and 'propositions' (the quotes are to show that we intend to use this term in a different sense from the traditional logical one). This network is a mental reflection (representation) of entities, properties, and relations between them, of a fragment of the world (real or imaginary) something like a matrix of mental representations of the subject matter of the communication. In this usage, the term 'proposition' denotes a frame or a script of a certain fact or event. The Russian linguist Samuel D. Katznelson has suggested that the proposition be understood as a 'picture':

> [...] a proposition is an expression of an act or state as a relation between logically equal entities [...] it contains an element of imagery and in this respect is a more direct reflection of the real world than a sentence. Just like a picture, the proposition depicts a whole episode, without prescribing the vector or order of consideration of its details [...]. (Katznelson 1984: 6)

To illustrate the entity-propositional network of a communication, let us conjure up a mental picture of a fragment of the world comprising the mental entities PETER, JOHN, THE BOOK, 30 DOLLARS as elements of a real-world situation, and the relations between them. Let us think of a situation involving a permanent transfer of the book from John to Peter and a concurrent transfer of thirty dollars from Peter to John in return. We do not yet know whether the act has taken place or is only planned for the future, nor the probability, or desirability of its happening, neither do we know from whose perspective the event is to be described.

Thus the referential or entity-propositional substructure is a picture of conjunct objects of thought or real-world situations (mental representations, in another terminology), reflecting a fragment of the real world as a group or constellation of configurations of semantic components. The referential substructure serves as the basic semantic structure of a communicative act, but falls far short of fully describing or representing the whole state of affairs. To complete the picture we have to add the *deictic co-ordinate system* of the discourse, *the factive and modality* component, the *evaluative component*, and, finally, the *pragmatic*[5] *framework*.

The deictic co-ordinate system brings spatio-temporal order to the referential substructure and specifies its relation to the speaker by spreading a grid of co-ordinates around the zero point of the 'I' of the speaker and his 'HERE' and 'NOW'. In the case of spoken oral communication the 'HERE' and 'NOW' are common to speaker and hearer. Distinguishing the referential substructure per se from this co-ordinate grid within the full entity-propositional picture

is easier to imagine if we remember that one may think of an event or a state apart from its relation to space and time, since any event can be thought of as happening anywhere in time and space. The event of the passing of the book from John to Peter in return for money can also be described from different points of view, as for example:

Peter: *I bought the book from John for thirty dollars*;
John: *I sold the book to Peter for thirty dollars*;

An outside observer:

The book was sold to Peter for thirty dollars;
or *Peter bought this book for thirty dollars*;
or *John has sold the book to Peter for thirty dollars*;
or *Thirty dollars was the price John sold the book to Peter for*;
or *Peter paid John thirty dollars for this book,* etc.

These utterances share the same referential structure but have different deictic co-ordinates, viewing the event described either from the point of view of Peter, or John, or an outside observer. However it is easy to see that as soon as we represent a proposition as a language utterance (and we cannot introduce deictic co-ordinates outside an utterance) we also bring other semantic components into the semantic structure, in particular factivity-modality.

The *factive-modal component* marks an event either as having taken place prior to the moment of speaking (*factivity*), or as never having occurred prior to that moment (*counter-factivity*), or as potentially occurring in the future (*non-factivity*), and which could take place with a certain degree of probability or necessity, and be either desirable or not desirable (*modality*).[6] The following examples illustrate some of the resulting utterances.

For thirty dollars John might sell the book to Peter.
John has to sell the book to Peter for thirty dollars, for he needs the money right away.
Peter might buy the book from John for thirty dollars.

The next component, which is extremely important, is the *value judgement* of an entity or proposition by the speaker, presenting it as desirable, undesirable, etc. From the speaker's point of view, without this component there is actually no message worth communicating to the hearer. The representation of a certain fragment of the world only has some sense if the speaker wants to express some kind of a personal attitude to the proposition. The evaluative element may

appear either as a separate lexical unit or synthetically, alongside the expression of other semantic components:

> *I think that thirty dollars for John's book is too expensive.*
> *I would have bought the book from Peter yesterday had he not been selling it for thirty dollars.*

where the negative assessment of the proposition 'John is selling the book to Peter' goes together with the negation of the fact of purchase (counter-factivity) and a modal expression of desirability of the book's transfer.

Finally, in addition to the above components, discourse always contains a *pragmatic framework* indicating the relations of the speaker and the hearer through the proposition.

> John: *'Peter, would you like to buy the book from me, I'm asking only thirty dollars'.*
> Peter: *'You should be ashamed of yourself, John! Asking thirty dollars for such a book!'*

This sociopragmatic information reflects the social and interpersonal standing of the participants in the communicative act. We all find ourselves playing numerous standard social roles in our lives, irrespective of our personal characteristics: a passenger, a car driver, a traffic cop, a host at a party, a guest, a payer, a buyer, a seller, a superior on a job, a worker, etc. – or, as conference interpreters, we may be a prime minister, a President, a foreign minister, or a distinguished scientist or economist participating in a debate at an international gathering.

It is not always easy to isolate one or another substructure in a discourse. Yet the analysis of live SI shows that in fact, interpreters apparently do often subconsciously isolate the individual components. Basic components or substructures play different roles in the semantic structure of discourse, and from the communicative point of view they tend towards one of two poles: the act of *reference* and the act of *predication*. Reference is an act of nomination (designation), pointing to the existence of the referent or assigning it to a category or class of objects, or properties, or events and states in the world. Predication is the act of stating something about a referent, of ascribing a certain property to it. From the communicative point of view, reference and predication correspond to the expression of the *theme* of an utterance (or of a discourse or part of a discourse), and the *rheme* as the foregrounder in each utterance.

How do the substructures described above fit into these two communicative categories? The referential and deictic substructures can be classified within

the thematic part of discourse, or its theme or topic (some linguists would call it the *hypertheme*). The factive and modal components clearly form part of the rheme of each utterance (although certain higher, more abstract categories derived from the grammatical categories of modality may form abstract concepts like probability, desirability, necessity, etc. gravitating towards the thematic substructure). The evaluative component should by its very nature form part of the rheme, but since the theme and the rheme are linguistic components, formally the evaluative component may become part of the overall utterance theme (though in substance, as we will show later, it may be regarded as a 'concealed rheme').

As to the pragmatic component, it is closely linked with the extralinguistic situation and will be dealt with in greater detail later when we consider the SI communicative situation (§23 below).

The thematic (referential) substructure is mentally placed within a grid of spatial (and sometimes temporal) co-ordinates. Before the message can be fully comprehended, it must be perceived as a message *about* an entity, a fact, or an event which (1) is in some way related to point zero of the deictic reference framework, (2) possesses some spatial and temporal dimension, and (3) is perceived either as a fact (something that has occurred) or as a possibility, or necessity, or desirability in the future.

Temporal and spatial co-ordinates, and parameters of reality/irreality (factivity, non-factivity and counter-factivity), are reflected in language and speech in both lexical and categorial semantic components (see Chapter 3), especially in the syntactic categories of tense, the relational categories of prepositions and conjunctions, and aspectual and modal categories, but also in evaluative elements, which are very often tied up with modality, and, finally, in numerous expressions or markers of causal and other logical relations.

The various components and structures of discourse are interlinked, so that the appearance of a certain referential or propositional structure presupposes the occurrence of other related structures. For example, a *congratulation* presupposes an event that has already occurred, and implies the *positive attitude* of the speaker towards that event; the expression of condolences also evokes preceding events, which are, however, negatively assessed by the speaker and society; the indication of a possibility, or eventuality, or necessity is neutral in relation to the speaker's value judgment about the eventual propositions; and finally, an expression of desirability presupposes a future event and the speaker's positive attitude to this event. This interrelatedness of structures significantly helps the interpreter in processing the general referential structure of the text under the severe time constraints of on-line SI. Furthermore, individ-

ual lexical semantic components of the referential and propositional structure of the discourse are linked to other components and their extralinguistic referents because they are embedded in the same frame/script associated with the state-of-affairs that the discourse deals with.

This means that when assessing redundancy in the semantic picture of the SL discourse, it is extremely important to take into account both categorial (syntactic) and lexical semantics, which also allows us to dispense with a detailed analysis of various linguistic categories where accounts differ among grammarians and limit ourselves to a rather general description.

Let us briefly review the categories of *factivity* and *modality*, as they form a part of the semantic structure of discourse, and are of direct relevance to simultaneous interpretation.

According to Kiparsky and Kiparsky's (1971) classical definition of factivity, a verb is factive if the complex sentence containing that verb presupposes the truth of the embedded clause; verbs like *forget* are classified as factive and verbs like *think* as non-factive. In other words, *factivity* refers to the assertion of the truth of the proposition by the speaker, correlated with its reality, while *counter-factivity* refers to his negation of it and its irreality; a factive or counterfactive main clause is said to presuppose (the speaker's commitment to) the truth or falsehood, respectively, of the fact or proposition in the complement clause, which thus always allows the paraphrase *The fact that* [...].[7]

It is amazing / not surprising ... that they survived
⇒ *The fact that they survived is amazing / not surprising*
We are sorry that [...]
⇒ *The fact that* [...] *makes us feel sorry*
It's tragic that [...]
⇒ *The fact that* [...] *is tragic*
He is worried for his daughter
⇒ *He is worried by the fact that his daughter* [...]

Factivity/counter-factivity does not explicitly assert or negate but rather *presupposes* the assertion (or negation) of the fact. For example, in an utterance like

I know (assert, believe, etc.) that he has come

we are dealing not with an objective fact, but only with an assertion of the speaker's belief.

The negation of falsity (which reverts to the assertion of truth) is a return to factivity; in the following two utterances, the truth of *he went to Paris* is presupposed in both (a) and (b) below:

a. *I wish he had not been to Paris before* [. . .]
b. *Had he not been to Paris before* [. . .]

Note that the perception of the implications arising from the negation of falsity in the above examples (i.e. the perception of the factive propositions) requires additional processing time in contrast to the perception of direct assertions like (a') and (b') below (Lyons 1977):

a'. *I am sorry that he has been to Paris before*
b'. *He has been to Paris before*

Non-factivity does not commit the speaker to the truth or falsity of the proposition. It is simply the absence of a presupposition of fact in a situation described by the complement clause: *It is possible* (*probable*) *that* [. . .], *it seems that* [. . .]. Neither the assertion nor the negation of a fact is presupposed here; there is only its possibility, or its doubtful nature, or a varying degree of probability, which is characteristic of modal predicates.

The semantic component of *value judgement* (either positive or negative attitude of the speaker to the proposition expressed) is a necessary part of the description of the fragment of the world. 'Wherever a relation is established between the subject of cognition and the objective world, assessment is always present [. . .]' (Kolshansky 1975: 142).

The value judgement component is quite prominently expressed in political statements, but there is always an element of evaluation in any utterance, varying on a scale from 'bad' through a neutral point to 'good'.[8] Even when it is at 'neutral' (i.e. not explicitly expressed), this component is still present and may be found via the context.

The value judgement component may also be part of a complex semantic configuration which includes categorial components. For instance, the modality of desire may be presented as a compound categorial configuration with semantic components of (a) non-factivity, (b) desirability and hence (c) the positive assessment of the proposition by the speaker. For example, in *I wish the house were silent* the speaker deems it good to have *the house silent.*

In addition to markers of reality/irreality, modal verbs of commanding, permitting or forbidding also contain semantic components indicating superior-subordinate relations between the speaker and the hearer.

You must do it ⇒ I command you to do it
You may do it ⇒ I don't mind your doing it
You may not do it ⇒ I forbid you to do it

Thus the semantic structure of a discourse, besides the referential substructure which represents a world fragment as entity-fact-event, chiefly expressed in lexical semantic components, also has a categorial semantic add-on, which is often expressed iteratively and constitutes the categorial redundancy of the discourse.[9]

Some categorial components operate over an extended stretch of discourse, from an utterance to a paragraph to the whole speech. This effect is also reflected in the componential structure of the discourse, which we can isolate as a distinct dimension of the discourse for the purposes of analysis, highlighting components such as the deictic 'world' of the communication (with reference to the 'zero point' of 'I', 'here' and 'now'), and the factive, modal and value judgement components.

The referential (REF) and deictic (DEIK) components, on the one hand, and the factive and modal component (FACT), on the other, are grouped around the two opposing poles of the thematic and rhematic substructures, while the value judgement component (EV), enters (linguistically, at least) into both these substructures. The pragmatic component forms the overall framework of the discourse.

The semantic structure is to be considered as a mental construct continuously formed in the hearer's (interpreter's) mind as the discourse unfolds.[10]

17. Semantic structure as the object and product of SI

We have established so far that when the speaker is producing a discourse,

1. he communicates *what* he is talking about, i.e. communicates the discourse topic, by gradually developing a referential substructure which reflects the entities and state of affairs in the fragment of the world the discourse is about;
2. he communicates something *about* the subject of the communication in each utterance in the form of the utterance *rheme*, which amplifies the hearer's knowledge of the topic of discourse;
3. when communicating something, he also expresses his belief in respect of the relation of the topic to the real world, by marking the *reality/irreality*[11]

of the propositions communicated expressed as factivity/counter-factivity/non-factivity, i.e. presenting them as either fact, possibility, or necessity;
4. he conveys an *attitude* and a *value judgement* about the subject of communication, either explicitly or implicitly, on the scale of evaluation from positive through neutral to negative;
5. he establishes his attitude or *relationship to the hearer*(s) in the way he formulates the propositions (pragmatic factor).

We have shown above that these factors combine to form the semantic structure of a discourse. The acoustic, lexical and grammatical structures of the source and target languages are intrinsically different and cannot be transferred from SL to TL as such, so the transfer concerns only semantic structure, which alone is capable of being transferred. That is why only the *semantic structure of the discourse*, and not the discourse as such in its totality, is regarded as an *invariant* in simultaneous interpretation.

In all other kinds of translation activity (written translation in particular), where processing time is relatively or absolutely unconstrained, certain criteria, like stylistic, or even formal, correspondence, may apply which are only optional in SI. Written translation always requires a search for equivalents connected with verbal (linguistic) features of the TL discourse, for example:

– rhythmic organisation and rhyme, in poetry;
– verbal and stylistic idiosyncrasies of the characters, in *belles lettres* or literary translation;
– terminology, especially in technical and legal translation;
– certain functionally equivalent phrases or grammatical forms whose equivalence is established pragmatically, by 'social contract', in legal translations.[12]

Conveying the verbal/stylistic characteristics of the speaker is also desirable, but in practice this is far from being a must: SI is deemed successful if the message, the sense of the discourse, is rendered. But rendering the sense of the message also entails reflecting the links between message components, which brings us back to the transfer of the semantic structure as a necessary and sufficient condition for keeping intact the identity of the message, which should be the *invariant* common to SL and TL.

Both requirements are established pragmatically, though it is not clear that transferring the semantic structure is always sufficient to count as the transfer of the integrity of the message. However, most expert audiences participating in international conferences, especially 'experienced' participants accept that the

primary goal of SI is to render the sense of the discourse, i.e. to keep its message invariant. As for the *necessity* of transferring the full semantic structure to achieve invariant reproduction of the message, interpretation does allow for some leeway, as we shall see later.

If we accept the *semantic structure* of the discourse as the invariant which is to remain intact in the transition from SL to TL in SI, this being the necessary and sufficient condition for the act of SI to be deemed successful (felicitous), then we can say that the semantic structure of the SL discourse is the *object* of SI activity, and that an equivalent semantic structure in TL is its *product*.

Chapter 5

Communicative context and subjective redundancy

18. Implicit sense and inference

As has been shown above, both the interdependence of discourse components and their repetition result in considerable *objective* (textual) redundancy. But the total redundancy is much higher, as we will try to show. Additional redundancy arises from interaction between the semantic structure of a discourse in progress and the cognitive store of the hearer, i.e. her knowledge of the world in general, or her familiarity with ('background knowledge' about) the present communicative situation. This interaction results in a non-discrete mental representation which I shall call the *sense* of the discourse produced.

The retrieval of the sense of the discourse by a receiver is a result of subconscious inferencing,[1] based on language knowledge and the cognitive thesaurus, including background knowledge and awareness of the communicative context. This process results in increased redundancy for the receiver of a discourse at the level of *sense* (subjective) redundancy.[2]

Subjective discourse redundancy is based on the notion of *implication*.

Comprehension[3] depends on adequate analysis of the content of the message, not only as it is expressed explicitly, but also its concealed, implicit component. The question of implicit content has long been discussed in the literature, under various guises: literary studies speak about a *subtext* or *undertone*, lexicology and stylistics deal with *connotations*, while speech-act theory differentiates between *sentence meaning* and *speaker meaning* (Searle 1979).

The assumption that speech contains a concealed component, something implicit in the explicit statement, has been one of the postulates of linguistics in general.

Comprehending messages means drawing inferences from those messages based on extralinguistic knowledge, of the world and of the communicative situation (including its pragmatic[4] dimension). The notions of presupposition and implicature in linguistics are both based on the concept of material

implication in logic, according to which a proposition of the form "if A, then B" (A → B) presupposes both the explicit antecedent A and the explicit consequent B. We assume that there is a difference in principle between the *logical operation* of implication and *linguistic* notions of implication and presupposition. The trouble is that, in contrast to the logical operation where both of the two propositions are given *explicitly* (both the antecedent A and the consequent B), linguistics deals with only one explicit term of the relation: either the antecedent, or the consequent. The second term is either *presupposed*, or *implied*. If the explicit term is the antecedent, we have an *implicature*, and if it is the consequent, we have a *presupposition*.

We therefore suggest that a third term be introduced into the binomial formula of logical implication in order to account for the difference between linguistic presupposition and linguistic implicature: (A) → B → (C), to be read: "if A is implicit, then B is explicit; if B is explicit, then C is implicit", where B is the explicit term verbally expressed in the text of the message, while the terms (A) and (C) are only implied. Then (A), as an antecedent for B, is its *presupposition* (a condition that guarantees that the message makes sense), and (C) is its *implicature*, or inference, drawn by the recipient of the message from the explicit utterance of B in the message text (Chernov 1981, 1987a, 1987b). The presupposition (A) is never given to us explicitly in the text, yet we know that the explicit B can only make sense on condition of (A). We assume that (A) was in the speaker's mind if he wanted us to understand B in the way he meant it. On the other hand, the explicit B is the premise for generating a (theoretically unrestricted) number of inferences (C) which further facilitate communication.

Thus, if we accept these assumptions, the *presupposition* is an antecedent of the explicit statement of B, such that its being presupposed by the speaker is a condition of B making sense to the hearer as it did to the speaker; while the *implicit* consequent (C), the inference about the sense of the message, is the result of a mental (but not necessarily logical) operation which the hearer performs, subconsciously, in order to comprehend B.

That means that (A) and (C) are not identical, and that presupposition is in a sense broader and richer than implicature, the latter being only the minimal inference, allowing the hearer to somehow understand utterance B. The depth of comprehension will vary with different hearers of the same message; it will depend on the personal mental abilities of the hearer, her stock of knowledge in general, and her situational knowledge pertaining to the given utterance, in particular.

We might even speak about the 'implicational potential' of the message as of a theoretically possible set of presuppositions of a given utterance which underlies the potential set of implicatures which the ideal hearer would be able to infer from the utterance.

In practice the implicatures inferred from a text are, as a rule, much poorer than the set of presuppositions. They do not cover the whole possible range of inferences, but only those that are necessary to comprehend the message in a given context and communicative situation.

Even an explicit antecedent in the text usually carries both obvious and not so obvious presuppositions. A speaker is not necessarily aware of all the possible presuppositions of his utterance. The hearer, on the other hand, retrieves only subjectively relevant conclusions (not necessarily those intended by the speaker) depending on her own cognitive thesaurus and knowledge of the situation. In other words, the factor complicating the process of mutual comprehension lies in the idiosyncrasies of the speaker and the hearer.

Let us consider the following dialogue:

(S1-a) *And where is Ann Smith now?*

(S2-a) *She lives somewhere in the Midwest, and she is no longer Ann Smith, she is Mrs. Jones now.*

(S1-b) *And how can one get in touch with her?*

(S2-b) *Her elder son is a student here at Columbia.*

The presuppositions of (1a–2b) not explicitly expressed include the following:

1. Ann Smith is an adult woman (she has changed her maiden name, she got married to a Mr. Jones, and she has a son),
2. she has more than one child, at least two sons (one of them is the elder; therefore, she also has a younger son),
3. her elder son is no longer a child (he is a student),
4. he must have successfully graduated from high school (since he is a university student),
5. at the moment of speaking he is in New York (the site of Columbia University),
6. the interlocutors must be somehow connected with Columbia University ('*here at Columbia*'),
7. hence Ann's son can be easily found,
8. since he is Ann's son, in all probability he knows where his mother is, he must know her address, etc.

Speaker 2 would not necessarily consciously keep all those presuppositions in mind when speaking, and not all of them are in fact relevant to this exchange. The fact that the set of presuppositions is richer than the set of inferences made from the same discourse is intuitively consistent with the fact that hearers do not always necessarily make the relevant inferences.

For instance, in our example, Speaker 1 might very well react to (S-2b) by saying:

'Does Ann really have two sons already?'

Generally, inferencing for comprehension is a fast and subconscious process, as can be observed in ordinary communication (and SI). This, however, is the case only when the redundancy of the message is sufficiently high. With low redundancy, comprehension is hampered or slowed, and conclusions sometimes begin to be formulated, at least internally (Kolshansky 1980: 88), as for instance when we read a difficult scientific or scholarly text.

Now, paraphrasing Searle (1979: 31–32), we may say that the hearer infers more than the speaker actually communicates to her by relying on the general rationality of the speaker together with their mutually shared background information.

Comprehension begins from the moment the hearer is able to make an inference from the part of the message already communicated, through her perception of the incoming semantic components and relating them to:

– other semantic components and their configurations in the discourse (*linguistic inference*);
– elements in her long-term memory or thesaurus of world knowledge (*cognitive inference*);
– factors in the situational context of the discourse (*deictic and situational inference*);
– the social role of the speaker (*pragmatic inference*).

To comprehend means to derive sense from discourse. The inference the hearer makes in understanding a verbal message is always the *inferred sense* of the message. However, the sources of inference vary, and need to be examined in more detail.

19. Linguistic inference

Linguistic inferences are subconsciously drawn by the hearer from the semantics of the discourse – both lexical and categorial – on the basis of intuitive linguistic knowledge. Chafe's rule of semantic constraints, formalised as W : X → Y : Z (see Chapter 3, §12), exemplifies this process.

Linguistic inferences play an important role in establishing co-reference in a chain of interconnected utterances. Co-reference is an important aspect of discourse cohesion. For instance, the UN Security Council extract we cited in §13 contains the following referring expressions:

My delegation… we… we… members of the Council… we… we…

The hearer infers co-reference between the personal pronoun *we* and the noun phrase *my delegation,* until the occurrence of *members of the Council*, after which subsequent occurrences of *we* are assumed to co-refer with the latter phrase. Such inferences are based on the rule of the 'grammar of speech' intuitively known to speakers of English whereby a first-person-plural personal or possessive pronoun co-refers with the most recent full referring expression denoting a group of persons which includes the speaker. This rule can be formalised as follows, after Chafe:

W	**pronoun**	**→ co-refers to W : Z**
referring expression designating group of persons including speaker	(*personal, possessive*) *1st person plural*	*referring expression designating group of persons including speaker*

A hearer can apply such rules to infer the referential substructure which is part of the overall semantic structure of the discourse. This particular linguistic rule is common at least to English, French, Russian and Spanish, the languages of the examples in this book, in which 1st and 2nd-person but not 3rd-person pronouns are used to refer to participants in the communicative act from the speaker's point of view.

To be sure, the pronoun systems display language-specific idiosyncrasies. For example, pronouns are particularly widely used in French, where they function as both semantic and syntactic place holders. In Spanish, on the contrary, the 1st-person pronoun is usually dropped in speech, the function of co-reference being taken up by the verb.

Inferences following from the pronoun co-reference rule are purely linguistic since they are based wholly on the hearer's knowledge of the language used.

Another basis for inferring co-reference in discourse is provided by the law of semantic agreement (the iteration of semantic components). Again, the hearer, guided intuitively by this law, is subconsciously looking for the iterative semantic components which make up a coherent discourse. This seems to be one of the main sources of referential inference in French texts, despite the powerful tendency of French to avoid word repetition (Gak 1977: 138–144), as illustrated in the following passage from a statement by the French representative in the UN Security Council:

> *Monsieur le* ***Président****, je tiens d'abord à vous adresser les félicitations de ma délégation pour votre accession a vos* ***hautes fonctions****. Nul plus que le représentant de la France ne peut se réjouir de voir la* ***présidence du Conseil*** *confiée au représentant de l'Italie* [. . .]
>
> *Que la* ***présidence*** *soit assurée par vous, Monsieur le* ***Président****, à qui d'importantes* ***fonctions*** *viennent d'être confiées au moment même où l'Italie assure la présidence de la Communauté européenne* [. . .]*, cela ajoutait encore à notre certitude que le Conseil* [. . .] *serait mené avec compétence et autorité.*

Despite not being synonyms, the words *présidence* and *fonctions* (*hautes fonctions*) are taken by a hearer to co-refer to exactly the same referent, on the basis of her expectation of coherence in the discourse. It is interesting to note that in the Russian SI transcript of this passage, one and the same word, *пост* (post), is used throughout the rendition, with two different attributes, *высокий* (high) and *председателя* (of the President). Similar examples abound elsewhere.

Action verbs, for example, could be grouped into broad classes partly according to their implicational potential, as was done for the English language in an early theory by R. Schank (Schank 1973) and applied in experimental computerised text-comprehension programs, in which the action verbs were represented as slots to be filled in the course of message development. As illustrated in Figure 5, the representation of verbs like *give* or *take*, for example, embodied the semantic component TRANS and certain 'conceptualization rules' (the details of which do not affect the present exposition). On encountering one of these verbs, the programme retrieved the semantic component TRANS and 'concluded' that it should seek the *who*, the *what* and the *to whom* of the act of transfer.

The inference made in such a case by the hearer results in a certain modification in her mental representation of the situation. On encountering such phrases as:

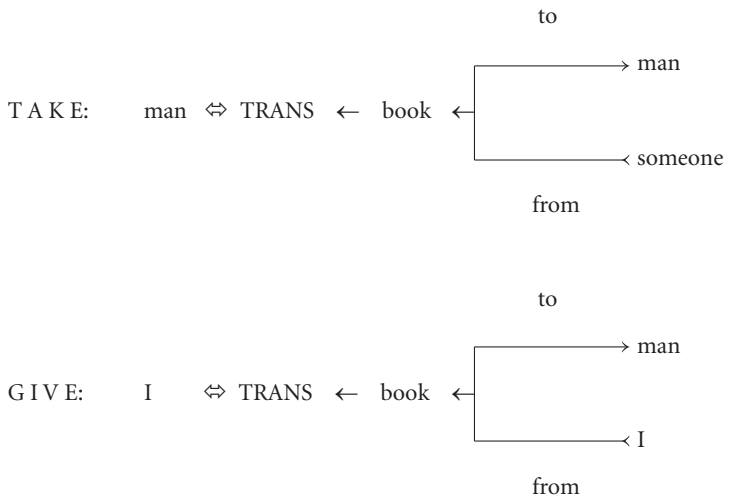


Figure 5. Representation of the verbs TAKE and GIVE. Both involve an action TRANS, but in TAKE, agent and receptor are identical, whereas in GIVE the agent and the originator of the action are identical (Schank 1973: 197).

> *he went away* (from this apartment, this city, this town, etc.),
> *he moved* (from this apartment, this city, this town, etc.),
> *he left* (this apartment, this city, this town, etc.),
> *he abandoned* (this apartment, this city, this town, etc.)

we can infer from their semantic contents and valencies that:

a. 'HE' is no longer there. This is an inference of the *determinate* or *closed* type (an inference to the contrary is invalid).

and, from the verb *move*, we may also definitely infer that

b. 'HE' took all, or at least some, of his possessions with him and is about to settle in another (apartment, city, town, etc.). This is, however, a *probabilistic*, or *open*, inference.

Arutyunova (1976: 122–123) cites a typical case of *open* or *probabilistic* inference from the use of common nouns denoting objects, in their secondary syntactic function of 'propositional nouns', as in:

> *I missed the lecture because of the train*
> (= because the train was late, because I was late for the train, because I had to meet someone arriving on the train, etc.)

He came despite his ankle
(= despite the pain in/the fact that he had sprained his ankle, etc.)

I couldn't come because of my mother
(= because my mother was sick/came to see me/asked me to do something, etc.)

Here the appropriate inference is made either from the previous context (linguistic inference) or from knowledge of the situation (situational inference, see below).

Linguistic inference, based on the hearer's knowledge of the language used in communication, relies on the *objective redundancy* of the discourse (see Table 4, Ch. 3 §12), which thus contributes to reliable comprehension of the message.

More specifically, from the point of view of interpretation, iteration (in the form of both semantic agreement and co-reference) is a factor allowing a linguistic inference. To quote Roderick Jones's *Conference Interpreting Explained* (Jones 1998: 143):

> It may well be perfectly possible to understand a speaker's meaning without actually understanding every single word and expression they use [...] For example, imagine that a delegate says:
>
> > *I don't think that the advisory committee is the appropriate forum for discussion of this point. What is important is that the groundwork be done in the technical working parties, in order to prepare the basis for a decision in the executive committee.*
>
> Let's assume the unlikely, namely that the interpreter understands neither FORUM nor GROUNDWORK. Yet this does not prevent them from understanding that (1) the advisory committee is not the right place to discuss the matter, and (2) the question has to be properly prepared for the executive committee by the technical working parties. The interpretation is possible without all the words and without changing the meaning.

But Jones also quotes an example where gaps in language knowledge and comprehension may indeed prevent the proper rendering of a discourse:

> There are other occasions [...] where a word is too important to be skated round in this way. Let us say that Norway is being discussed and the motorway network is referred to:
>
> > *Given the topography of the country, the construction of motorways has been very expensive. The Norwegians have found the solution to*

> *their financing problems by imposing tolls. And these tolls are pretty expensive. The roads are wonderfully built, a pleasure to drive upon, with beautiful scenery, but when the poor driver gets to the end of their journey and has to pay the toll, they certainly feel that their wallet is much lighter.*
>
> The key word is TOLL, and if the interpreter does not know it they can hardly avoid it. (Jones 1998:13)

The determinate or closed type of inference is very often, though not exclusively, associated with categorial semantics. The 'prohibitive' or closed implicational potential of the discourse unit constrains the area of 'open' or probabilistic inferences and allows unambiguous comprehension of the discourse. Where a speech unit has 'permissive' or open implicational potential, it allows multiple probabilistic inferences, and their range is likely to determine the depth of comprehension.

Theoretically, open inferences can multiply in a chain reaction, resulting in an implicational explosion. To overcome this problem in computational text processing, developers of artificial intelligence (AI) systems have introduced frames and scripts to constrain "freedom of inferencing" – which, for all practical purposes, means imposing a narrow context.

To conclude, we can say that the linguistic type of inference is made from the content of discourse itself. In other words, linguistic inferences, on condition that the interpreter knows the source language, rely wholly on the objective redundancy of discourse. The other types of inferences have other sources.

20. Cognitive inference

Cognitive inference, as we have said, occurs when the interaction between the semantics of the discourse so far and the hearer's cognitive thesaurus (background knowledge) gives birth to sense, which is new knowledge based on an inference. In other words, the source of cognitive inference is background knowledge. More often than not, and excepting the case of very specialized or narrow technical or scientific knowledge, cognitive inference is very closely linked with linguistic inference. This is easily explained: the lexical semantics of a language, is a reflection, albeit indirect, of the outside world of discrete natural phenomena and artifacts, as well as of social experience of people.

Analysing the semantics of the direct meaning of the sentence according to speech act theory, John Searle points out that even this direct meaning is not context-free, since it too depends, no less than the indirect meaning,[5] on the contextual or background knowledge of the communicative participants. To comprehend, i.e. to infer the sense of the utterance *The cat is on the mat,* is only possible against the background of the traditional notions humans have about life on earth, including gravitation. If we place the cat and the mat into a spaceship we will either not be able to determine whether the cat is on the mat or the mat is on the cat, or will have to establish a new system of co-ordinates which situates things or beings in relation to a basic surface, or to the axis of the human observer (Searle 1979: 120–121).

Background knowledge is essential for human comprehension. A wrong cognitive inference often results in a rendering error, or in the impossibility of rendition as can be illustrated with this example from a speech by the former Chilean president Salvador Allende:

> *Tengo fe en Chile y en su destino* [. . .] *Sigan ustedes sabiendo que, mucho más temprano que* tarde, **se abrirán las grandes alamedas** por donde pase el hombre libre, para construir una sociedad mejor.
> 'I have faith in Chile and in its destiny [. . .] Continue in the knowledge that, much sooner than later, **the great boulevards will open** along which free men walk, to build a better society'.

The emphasised words were translated into Russian as follows:

зашумят	*листвой*	*тополевые*	*аллеи*
'rustle	(with) leaves	(the) poplar	alleys'

Тополевые аллеи (*poplar alleys*) appear in translation on the basis of a purely linguistic inference supported by a Spanish-Russian Dictionary:

> *alameda* 1) *место, засаженное тополями, тополевая аллея* (*a lot planted with poplars, poplar alley*);
> 2) *аллея* (*an alley*)

The same meanings are given in major Spanish-Spanish dictionaries.[6]

However, Chileans, over one third of whom live in the capital, Santiago, strongly associate the phrase *las grandes alamedas* not so much with the rustle of poplar trees or poplar alleys as with Santiago's main thoroughfare, La Alameda, a broad avenue without poplars (or any other trees for that matter) where various mass demonstrations took place in Allende's time. Hence Allende's phrase should rather be construed to mean "*a broad path*

will open…". But this translation is only possible on the basis of a cognitive inference, which in turn depends on knowledge of Santiago and the situation there at the time.

An example of how correct interpretation is impossible in the absence of any basis for a correct cognitive inference is supplied by Marianne Lederer (Lederer 1981:213) in an analysis of two simultaneous renditions (one at a conference, the other in an experiment after the conference) of contributions by representatives of several European countries' railway companies to a debate on the West European railway system. The passage analysed deals with a standard for a European railway car which will be used in several European countries. The German speaker says:

> *…weil **es**, wie Herr G. eben ausgeführt hat, **um** einen kurzen Wagen mit 8 Sitzplätzen im Abteil **geht**.*
> 'because, as Mr. G. has explained, **it is** ('it concerns') a short car with eight seats'.

The first interpreter renders this utterance as follows on the basis of a guess which, as it emerges later on, turns out to be wrong:

> *Monsieur G. vient de nous le dire, **il souhaite** une voiture courte avec huit sièges par compartiment…*
> 'as Mr. G. has just said, **he would like** a short car with eight seats in each compartment'

The second interpreter is more cautious. She says:

> *…comme nous l'a dit Monsieur G., **il s'agit d**'une voiture courte à huit places par compartiment.*
> 'as Mr. G. has said, **it is** (**'it concerns'**) a short car with eight seats per compartment'

In fact, what G. had said was that it was impossible for his country's railways to continue ordering short cars because of the planned change to a common (different) standard car. Neither of these two interpreters knew this, having been out of the booth resting at the time. The first interpreter's mistake could be attributed to an incorrect cognitive inference, resulting from a lack of background knowledge.

A final example is taken from the author's personal experience. At a symposium on breastfeeding arranged by the UNICEF for Russian pediatricians, a lecturer (a lady from a South-East Asian country) mentioned "the tiny stomach of an infant capable of holding only 'forty spoons' of milk", which was duly

rendered into Russian. An outburst of protests from the audience followed. Requests were heard to repeat the sentence, to which the lecturer said very slowly and distinctly "four TEAspoons". The source of the interpreter's error was obviously lack of knowledge of an infant's anatomy, and the fact that she rendered the phrase on the basis of a purely linguistic inference (the key syllable was pronounced without stress).

One particular type of cognitive inference, interesting because of its close interrelation with linguistic inference, was noted, but not formalised, by Chafe (1972:62–63). He points out that, in English, some nouns may acquire a definite article as a formal indicator of definiteness when following previously foregrounded lexical units with which these subsequent units are linked, in people's social experience, in some relation like whole-part, size, weight, length, color, etc., or, for events and states, cause and effect, result, or circumstances. For example, if you said

(1) *Yesterday I bought a bicycle.*

you could continue, without violating norms or usage:

(2) a. *The frame is very tough and the wheels are chrome-plated.*

whereas the continuation

(2) b. *The basket is extra large.*

would sound somewhat strange. This is because the frame and the wheels are recognised in our shared social experience as necessary parts of a bicycle, while a basket is optional. Chafe illustrates the difference with a diagnostic test:

(3) *Yesterday I bought a bicycle. It has a frame. It has wheels.*

(4) *Yesterday I bought a bicycle. It has a basket.*

The point is that the sequence (3) is felt to be tautological and only appropriate if a humorous or other special effect is intended, while the sequence (4) is a regular example of foregrounding a new element of discourse.

What Chafe is illustrating here is a type of cognitive inference. Once an object or phenomenon has been mentioned in discourse, parts or features of it mentioned thereafter will acquire definiteness, since (based on our experience) the appearance of the whole presupposes the appearance of its parts. This can be formalised as follows:

W	: X →	X : . . . . .
object	part of W	definite
phenomenon	feature of W	
cause	effect of W	

which reads: 'if a whole object, or phenomenon, or cause is mentioned in a discourse, subsequent appearances of a part of the object, a feature of the phenomenon, or an effect of the cause will be marked with a definite article, reflecting the category of definiteness as a presupposition of concurrent existence of the part (with the whole), the feature (with the phenomenon) and the effect (with the cause)'. These constraints are valid in discourse as long as the initial object of thought remains in the foreground.

For the hearer, the appearance of otherwise 'unexplained' definiteness would prompt a cognitive inference to the co-existence of W and X in the semantic field of the discourse.

In contrast to linguistic inference, cognitive inference is not language-specific. The above formula is equally valid for Russian and other European languages, which strongly suggests that we are dealing here with a cognitive type of inference.

Simultaneous interpreters are constantly making cognitive inferences, as can be experimentally confirmed. For example, the corpus of an experiment described in Chernov (1978) contains the following SL utterance:

> *This Assembly has increasingly turned its attention to the great problem of disparity between the standards of living of the developing and developed countries. . .*

Its perception prompts subconscious inferences, including cognitive inferences, so that the SL utterance assumes roughly the following form:

> *. . . problem of . . . gap between level (1) of life . . . of developed countries . . . and level (2) of life of developing countries . . . and level (1) . . . is high . . . (while) . . . level (2) . . . is low*

which is seen from the three following renditions from our experiment:

> ***. . . тем тяжёлым условиям***, *которые существуют в развивающихся странах*
> '(with) those difficult conditions, which exist in (the) developing countries'
> *. . . вопросу* ***повышения уровня жизни*** *развивающихся стран*

'(with the) issue of increasing (the) living standard (of the) developing countries'
*. . . **тяжёлому положению. . . жизни** в развивающихся странах*
'(with the) difficult situation . . . (of) life in (the) developing countries'

All these inferences are rooted in the cognitive thesaurus of the interpreter.

21. Situational inference

Situational inferences are based on deixis, which establishes the (deictic) co-ordinates – time, place, personal viewpoint etc. – of the discourse semantic structure. Point zero of the deictic co-ordinates is represented by the "I" of the speaker, and HERE and NOW in relation to the speaker. The convergence of the spatio-temporal co-ordinates at this zero point can be empirically confirmed by the following example. In a discourse the speaker may very well say:

. . . and NOW with your permission I will slightly digress from the main topic. . .

or he may equally say

. . . and HERE with your permission I will slightly digress from the main topic. . .

In other words, a spatial pronoun becomes synonymous with a temporal pronoun.

Situational inferences 'normalise' sequences like (1)–(2b) in Chafe's example about the bicycle in the previous section. Normalisation is possible in a specific communicational situation, when the bicycle is located within the immediate visibility of both the speaker and the hearer. In that case, the inference necessary for understanding (2b) as referring to 'the X *of this* (*that*) *W*' is *situational*, although it is still an inference about the referential substructure of the discourse: in our example, it is about the coexistence of X and W in the given communicational situation.

An example of a purely situational inference is given by Lederer (1981: 64). While presenting a paper at an international symposium, at a certain moment the speaker says: "Lights, please!", whereupon a technician turns off the lights for a slide-show. A few minutes later the speaker again says (with the same intonation): "Lights, please!", and this time the technician turns the light on, thus concluding the show of slides. Similarly, a stage manager might say

'Curtain, please!' as a command to either raise the curtain or let it fall; in short, the same form of words can assume different and in fact opposite meanings, depending on the specific situation, as hearers make inferences strictly depending on the situation.

Such inferencing sits well with speech-act theory: without an inference the illocutionary and perlocutionary force of the utterance would remain "things-in-themselves". Speech act theorists show how a grammatical question can be turned into a request in numerous standard communicative situations, a trivial example being the phrase *could you pass the salt*?, to which the reply *Yes I could*, without any further action, would seem more than strange. Similar requests are routinely couched in the form of questions: *Could you shut the door*?, *Could you turn on the light?*, etc. Very often a *please* is added to the question, thus making a purely situational inference a combination of the situational and linguistic types.

Situational deixis may obviate explicit designation of referents, and has the same consequences for the subsequent development of the discourse as other kinds of reference. This may sometimes serve as a magic wand for an escort interpreter, who can *point* to a gadget and say *this thing, installation, contraption,* or *cette chose,* or *esta cosa,* etc., when (s)he does not know a technical term, thus saving face in an otherwise awkward situation.

22. Pragmatic inference

An inference of the pragmatic type[7] is made by the hearer about the speaker and his social role (as well as the specific role he plays in the given situation).

Since pragmatic inferences are more prominent in dialogue, this kind of analysis is very often carried out on a communicative situation in which there are two interlocutors in direct contact with each other. Grice (1975) and later Leech (1983) developed basic principles of pragmatics, the co-operative principle and the politeness principle, which both relate primarily to dialogue situations and are therefore illustrated with conversational data.

Nevertheless, these principles are also applicable to the situation of public speeches and hence to the SI communicative situation. The effect of pragmatic inferencing becomes apparent particularly when the principles of pragmatics are violated.

A considerable contribution to the study of pragmatics, and hence – indirectly – to the study of inferencing, was made by speech act theory. Certain kinds of speech acts are inseparable from appropriate pre-conditions for their

use, known as 'felicity' conditions. In order to perform a certain speech act 'felicitously', the speaker must enjoy a certain status or position in relation to the hearer, usually derived from an institution. In Searle's example, 'if the general asks the private to clean up the room, that is in all likelihood a command or an order' (Searle 1979: 5). Hence the hearer of a command or an order makes an inference about the institutional social status of the speaker, because in order to perform such an act 'one must have a position within an extralinguistic institution' (Searle 1979: 7).

Of the five categories of speech acts proposed in Searle's taxonomy (assertives, directives, commissives, expressives and declarations), at least two, *directives* and *commissives*, are volitional acts (Leech 1983: 211) in psychological terms and therefore require a certain social status of the speaker. Directive verbs include *bid, order, command, forbid, recommend, instruct, request,* as well as *ask* and *beg*, while commissives include such verbs as *promise*, *commit oneself*, *offer*, etc. *Declarations*, according to Leech (1983: 206) 'derive their force from the part they play in a ritual', as in '*I find you guilty as charged*', '*I now pronounce you man and wife*', '*I appoint you…*', '*War is hereby declared*', '*I declare the meeting adjourned*', '*You are fired*', '*I resign*', '*I excommunicate you*', etc. (Searle 1979: 26).

Thus, the appearance in the semantic structure of a discourse of such speech acts as directives, declarations, and to a considerable extent, commissives, allows the audience and the simultaneous interpreter to draw inferences of the pragmatic type about the social status of the speaker. Before concluding this consideration of pragmatic inference in SI, we should therefore examine the communicative situation of SI.

23. The communicative situation of simultaneous interpretation

Inferences made by the hearer from extralinguistic sources (cognitive, situational and pragmatic) are a powerful tool for comprehension.[8] We may safely assume that in the absence of such sources, comprehension would always be incomplete, defective and deficient – indeed, only a surrogate comprehension. For example, we would not expect most readers to understand fully the passage quoted in §13 without the additional extralinguistic information we have supplied. Comprehension is greatly facilitated in the actual communicative situation, where the hearers knew that the passage was the opening paragraph of a statement in 'an explanation of vote after the vote' by the deputy permanent representative of the United States to the UN Security Council in September

1978, in the debate on the Cyprus question, after a Council decision had been taken on the basis of a consensus; that this consensus had been reached with the participation of two successive Council Presidents (following the customary monthly rotation of the Security Council Presidency) as well as several other members of the Security Council; and that the parties concerned were the delegations of the Republic of Cyprus and Greece, on one side, and Turkey and the Turkish community on Cyprus on the other.

Whatever a speaker states from the rostrum, it usually concerns only a fragment of the 'picture of the world', or the state of affairs therein, a fragment 'cut out' by the speaker to make a certain impact on the audience; indeed, he develops only this one fragment, stressing certain 'objects of thought' he deems relevant, rather than drawing the whole picture.

The question of *situation* in the theory of translation, as in linguistics in general, is usually considered from two points of view: the material or object situation described in the discourse, and the situation in which communication occurs. Both aspects are extensively discussed in the two disciplines, and elsewhere, notably in paralinguistics, psycholinguistics, and theories of verbal communication. Research into communicative situations has examined how extralinguistic context, co-text, or paralinguistic factors interact with the verbal communication to produce a certain communicative effect (Kolshansky 1980: 59).

For SI studies, it is essential to consider this interdependence between factors in the communicative situation and the semantic components of discourse structure if we are to identify certain inferential processes.

The *SI communicative situation* may be captured in a limited set of features of the situation in which the event, and therefore SI, is unfolding (Chernov 1975: 83–101). By definition, such an event includes an individual speaker producing a public monologue, and an international audience constituting the message recipients.

Our analysis of the communicative situation of SI reveals eight clearly identifiable factors, which we will letter-code here for modelling convenience:

factor **S**:	the characteristics of the message source, or speaker: *who* is speaking?
factor **Th**:	the theme of the message: *what* is he talking *about*?
factor **E**:	the relation of the act of speech to the event that provoked it: in *what connection* is he speaking?
factor **A**:	the message recipient, or audience: *whom* is he addressing?
factor **F**:	the place, or forum: *where* is he speaking?

factor **T**: the time: *when* is he speaking?
factor **P**: the purpose of the communication: *what* is he *aiming at*?
factor **M**: the speaker's motive: *why* is he speaking?

These factors are sources for inferences of different types: the interpreter's acquaintance with factors Th and E (and, partly, factor T), which comprise the specific conference background, allows cognitive inferences; awareness of factors F and T licenses situational inferences; and factors A, S, P and M are sources of pragmatic inferencing.

Let us consider each of these in more detail.

23.1 Sources of cognitive inference

Factor Th (the thematic factor) determines not the precise topic of discussion, but rather a thematic framework for expected contributions (major presentations, reports, contributions to the debate, decisions and resolutions). This factor assigns a certain degree of probability to their occurrence. Knowledge of the Th factor helps to anticipate a possible event, and, hence, possible values of factors E, A and S (event, speakers and audience). On the other hand, such anticipation excludes certain other topics, or even whole fields of knowledge.

The theme can be abstract or concrete, but initial knowledge of factor Th also helps to anticipate the level of thematic abstraction.

It is clear that factor **Th** will become fully and specifically known to the interpreter only at the conference itself.

Factor E points both to outside events that may have served as a reason, or a pretext, for convening the conference, and to inside events that occur during the conference itself, or in connection with it. This factor is particularly significant with respect to international organizations and international fora which are regularly or periodically convened and their relationship with the unfolding international situation. For example, since the UN Security Council was set up 'in order to ensure prompt and effective action by the United Nations', and bears 'primary responsibility for the maintenance of international peace and security' (Article 24 of the UN Charter), the topic of its emergency meetings will always be determined by some event in the world at large that may eventually develop into a 'threat to the peace, breach of the peace, or act of aggression' (UN Charter, Article 39).

Thus knowledge of factor E may help the interpreter prognosticate the thematic framework, or even a specific topic of the forthcoming meeting, as well as several other interdependent factors of the SI communicative situation.

23.2 Sources of situational inference

Factor F (the forum) concerns the type of conference where SI is provided: a one-time international meeting (academic conference, workshop, seminar, political meeting, etc.), or a regular or extraordinary session of an international organization. The initial data about the forum provide sufficient basis for anticipation of many other factors of the SI communicative situation. For example, the knowledge that the forum is to be subdivided into sub-events may also be informative enough in itself.

Factor T (time) is as a rule closely linked with the E factor, and chiefly concerns permanent international bodies.

23.3 Sources of pragmatic inference

Factor A (the audience). We will adopt the following definition of an audience, which although initially applied to an event like a lecture is equally applicable to other communicative events with SI:

> The audience is a short-term entity composed of people united by (1) the existence of a motive for attending the lecture and the relation of that motive to the lecture itself, i.e. the object of the action; (2) the effect of one and the same information [...]; (3) one and the same occupation; (4) availability of direct interpersonal visual and aural contacts; (5) their presence in the same place at the same time. (Zimnyaya 1970b: 11)

In an international conference any member of the audience may become a speaker, so there is the potential for a close pragmatic connection between factor A and other factors, in particular S, P and M.

Factor S (the Speaker). Useful knowledge about a speaker includes his nationality or, at an academic conference, affiliation or school of thought, which can give a clue to his possible view on the matter under discussion. More in-depth knowledge, including individual characteristics and especially, discourse idiosyncrasies, may often be available to a interpreter working in an international organisation or when the speaker is an internationally known figure. An idea of the speaker's motivation would constitute an even higher degree of mastery of factor S. With knowledge at the first level (nationality, affiliation etc.) an interpreter can anticipate a speaker's choice of topic and/or position on the issue being discussed; at the second level (knowledge of the speaker's social role and personal idiosyncrasies) she can anticipate discourse structure and style as well as the motives underlying the statements.

As has been noted in the literature (A. N. Leont'ev 1975: 160–161), communication sometimes takes the form of social role-playing. The parameters of this relationship between a public speaker and his audience are captured by factors **A** and **S** together, the roles being determined by other factors of the SI communicative situation, factors **F**, **E** and **T**.

Factors P and M (purpose and motive of the communication). The purpose of the discourse is very often stated in the discourse itself, or is easily anticipated from the sum total of the situational factors, whereas the motive behind the communication is never explicitly stated. Motive is defined by social psychologists as a combination of values shared by the individual that lead him/her to act in a certain way in a given situation. It is determined indirectly by social environment, behavioural norms adopted in that environment, and the individual's role in society. The interpreter's assumptions about the speaker's motive are derived from knowledge of the current situation in the speaker's country or social group, and/or of any opposing forces acting against the interests of that group.

The theory of activity, as expounded by the school of Vygotsky and A. N. Leont'ev, regards the *purpose* of an action (or statement, as far as SI is concerned) as an immediate *result* of the action (i.e. statement) directed to that objective. We will adopt this definition of P in what follows.

The implicational capacity of different SI situational factors varies according to their role in a particular SI communicative situation. Some of these factors may provisionally remain constant while others vary over the duration of the conference. Let us consider a case of one variable against the background of several constants.

23.4 Factor F ('Forum') as a variable

The 'forum' factor F may vary when one and the same agenda item is discussed at several levels (for example, in committees, commissions, or working groups of the same conference). In most cases a change in factor F also entails a change in factors A, S and, possibly, Th.

There are certain typical or '*standard*' SI communicative situations with common stereotyped conditions, as described, for example, in the Charters, Statutes, Rules of Procedure and other similar constitutive or regulatory documents of permanent international bodies. For example, the Rules of Procedure of the UN General Assembly define five factors of the communicative situation: the source of discourse (the Representative of the Delegation of a UN Member State to the United Nations General Assembly); the forum (United

Nations Headquarters); the time (the third Tuesday in September of each year); the audience (all delegations to the annual session of the General Assembly); the themes (determined by the Agenda of the session as adopted in accordance with the Agenda section of the Rules of Procedure).

Standard situations in the UN General Assembly include the election of the session Chairman, the admission of new members, a vote on a draft resolution, etc.

Formalisation of the SI communicative situation is not only of theoretical importance but also of considerable practical significance, since it could serve as a basis for a standard checklist of information to be supplied by conference organisers to the interpretation service, or for the compilation of glossaries of common phrases and cliches used in standard situations.

24. Discourse equivalent[9]

Let us also consider one particular but fairly common type of SI communicative situation: a discussion on a specific agenda item consisting of a succession of brief comments by different speakers (usually not more than two or three sentences). Here the discourse ceases to be a monologue and acquires many features of a dialogue; this is often the case in a discussion of a draft resolution, or of the language of the concluding report of the conference. Contributions to such a discussion are usually brief, incomplete and elliptical, but strictly confined to a narrow and well-defined topic of discourse, which remains constant throughout the session.

In terms of our analysis of the SI communicative situation, factors F, Th, E, T and A remain constant and quite specific, while factors S, P, and M vary. The discussion tends to form a single discourse that is collectively produced. The commonality of semantic structure in the thematic (referential) component (and subject matter) of such a 'discourse equivalent' becomes its salient feature. In contrast, each individual statement is characterised by its own P factor and contains an individual rhematic element of evaluative judgement, or a specific opinion, which may potentially become a proposal for international action (in the form of an evaluative text (a report), a recommendation, a formulation of a principle, or a legally binding text like a resolution, a decision, an article of a convention, etc.

Because of the commonality of the subject matter underlying the discussion, this type of discourse is characterised by high redundancy. Hence the ten-

dency of the speakers to be concise and elliptical, the ellipsis being compensated situationally.

From the perspective of SI, the interpretation of such a discussion should be regarded as the rendition of a single discourse with certain specific features:

1. the elliptical nature and sparse explicit content of the discourse make the interpreter's acquaintance with the communicative situation a *sine qua non*;
2. however, when the communicative situation is fully known to the interpreter, redundancy turns out to be considerably higher than at other meetings within the same event.

25. Interdependence of situation and semantic structure in inferencing

When the simultaneous interpreter perceives and tries to comprehend the discourse, she makes inferences both from her knowledge of the various factors in the communicative situation and from the components of the semantic structure; so the situational factors and the discourse structure semantic components begin to interact.

Let us recall that inferences about the sense of the incoming discourse are made from the components of the semantic structure (including those that ensure its objective semantic redundancy): the referential substructure (REF), the factive and modal component (FACT), the evaluative component (EV), the deictic co-ordinates of the semantic structure (DEIK), and its pragmatic framework (PR).

The interpreter's acquaintance with the SI communicative situation and its factors introduces *subjective redundancy* on top of objective, purely linguistic factors of redundancy.

Subjective redundancy depends on the interpreter's ability to make inferences about the sense of the message from her acquaintance with the situational factors. Thus, the semantic structure of the discourse, the interpreter's background knowledge, and her acquaintance with the communicative situation become interdependent, helping her to attain the necessary level of comprehension in the extreme conditions of SI. Let us now consider the specifics of this interdependence (the notation X → Y should be read as 'knowledge of X allows inferences about Y').

a. Situational factors **Th** (theme) and **E** (event) provide sources of inference about the REF, DEIK, FACT and EV components of the semantic structure:
   1. **Th** → REF, DEIK, FACT, EV

2. **E** → REF, DEIK, FACT, EV

b. Inferences about DEIK and FACT depend on knowledge about factors F (forum) and T (time):

3. **F** → DEIK
4. **T** → DEIK, FACT

c. Knowledge related to audience and speaker (his purpose and motives) help to infer the evaluative (EV) and pragmatic (PR) components of the discourse:

5. **S** → EV, PR
6. **A** → PR
7. **P** → EV, PR
8. **M** → EV, PR

This interdependence between situational factors and the interpretation of conference discourse is illustrated in Figure 6 below.

In the course of comprehending the message, the hearer's (interpreter's) acquaintance with Th and E unlocks referential, deictic, factive (modal) and evaluative substructures of the discourse semantic structure; in other words, from her knowledge of the theme and origins of the event she can draw

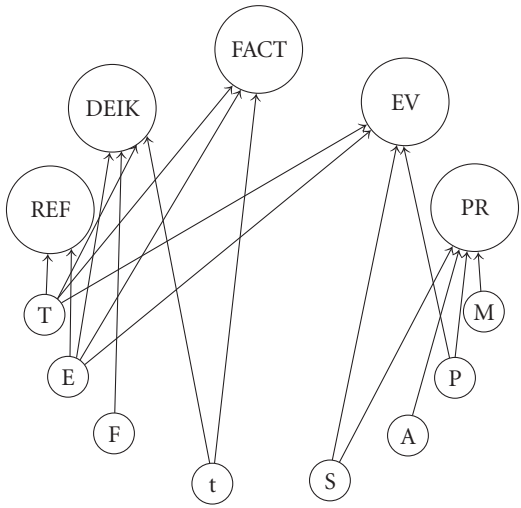


Figure 6. Interaction between situational factors and components of the semantic structure

certain conclusions about referential, deictic and evaluative components of the discourse semantic structure and infer the factivity and modality of individual utterances. This enhances message redundancy subjectively for the interpreter (depending on her extralinguistic knowledge) and thus facilitates comprehension.

Knowledge about F (forum) and T (time) contributes to resolving deixis and factivity in each utterance, while knowledge about S (speaker), A (audience), P (purpose) and M (motive) illuminates pragmatic and evaluative components of the semantic structure.

The process also benefits from feedback: if the hearer (the interpreter) makes certain inferences which are confirmed later as the discourse develops, the cognitive thesaurus of the interpreter and her acquaintance with SI situation are considerably enriched by the end of the discourse. One may say that the comprehension process is in fact a learning process where what is learnt contributes to subsequent comprehension. This may explain the fact, empirically well known to simultaneous interpreters, that it becomes much easier to interpret, and the quality of interpretation improves, towards the end of a conference.

This can again be illustrated by a chart (see Figure 7) in which the arrows are reversed.

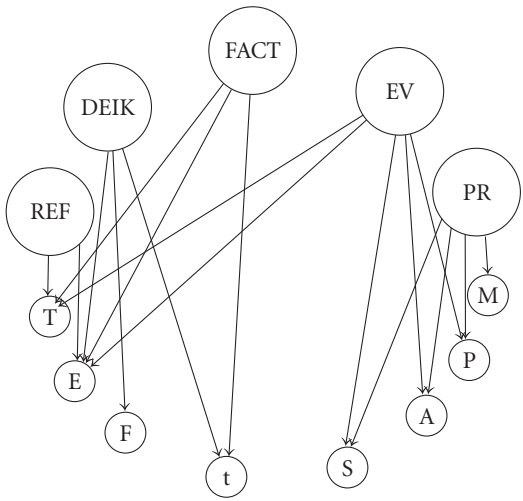


Figure 7. Learning in the course of the SI process

The overall picture of interdependence of the SI situational factors and the components of the discourse semantic structure would be incomplete, however, without taking into account indirect dependencies which probably further increase the message redundancy by yet another order of magnitude. Recall the interdependence of the components of the semantic structure:

REF → DEIK, FACT, EV, PR
DEIK → REF, FACT
FACT → REF, EV
PR → REF, EV

The situational factors are also interdependent, as follows:

Th → S, F,A,E
S → M, P, T, E, A, F, Th
F → Th, S, A, E, P, T
A → Th, S, F
E → Th, S, F
T → S, F
P → S, F, M
M → S, P

Finally, the entire complex matrix of inter-dependencies between situational factors and semantic components can be represented as in Figure 8 (below).

Analysing the intra-system dependencies and the complex interdependencies, we can derive certain formalised conclusions as to the comparative significance of the situational factors and the components of the discourse semantic structure for generating subjective discourse redundancy during interpreting.

If the number of direct links is to be taken as an indicator of the degree of importance attached to a particular situational factor or semantic component, we can conclude that:

1. the most significant (meaningful) component of the discourse semantic structure is its *referential substructure;*
2. the most significant SI situational factor is S (the *Speaker*);
3. however, in considering the complex interdependence of redundancy factors, while factor S (the Speaker) remains the most meaningful SI *situational* factor, the most meaningful component of the discourse semantic structure is the *evaluative component*, comprising value judgments about the subject matter of the discourse.

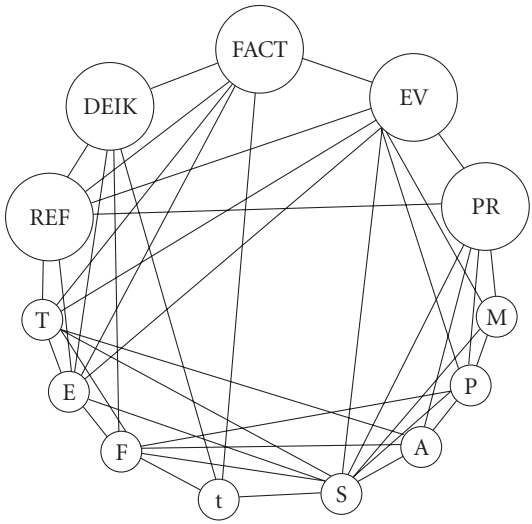


Figure 8. Complex interdependence of situational and discourse semantic factors in creating redundancy

The first of these conclusions is heuristically reflected in the general assumptions of research in text linguistics, while the second and third can be empirically observed in SI practice.

26. Situational factors in comprehension: An illustration

Let us offer an example of the interdependence between situational factors and discourse semantic components in two SI versions of a single original speech which were produced in an experiment in remote SI at the United Nations, in conditions which were particularly revealing of the impact of situational knowledge.

The experiment consisted in a test of remote SI performed from the UN Headquarters in New York via satellite. The conference, on technical co-operation between developing countries (TCDC), was held in Buenos Aires, Argentina, in September 1978. The plan was to service two sessions of the conference with simultaneous interpretation beamed from New York via a telecommunications satellite. A back-up interpretation team performed concurrently at the conference site, in booths installed in the conference rooms, both to ensure uninterrupted interpretation service at the conference in case of

failure of the remote interpretation, and to obtain a recording of standard, on-site interpretation as control. In other words, two interpreted versions of the same original discourse were available for subsequent analysis. An extended transcript is provided at the end of the book in Appendix A.

The experimental log shows the following entries:

> *September 5, 1978*
> The satellite is made available from 9:00 to 12:00 (noon), New York Time.
> 9:05. The communication channel in Buenos Aires is open. The quality of sound and picture[10] is very good.
> 9:15. Testing the sound quality in the booths.
> 9:33. The meeting is called to order. . .

The 5th of September marked the second week of the conference, and the team of interpreters in Buenos Aires was naturally much better acquainted with the conference situation as a whole than the New York team at the UN Secretariat, who had only received a short briefing on the first week of work and read a short background paper on the conference prepared in advance.

Now, at 9:33 the Conference Chairman raised his gavel and called the meeting to order, immediately giving the floor to a UN Secretariat official for an announcement. This official's opening remarks are transcribed here alongside the two Russian versions produced by the interpreters in New York interpreter and Buenos Aires. Both interpreters were experienced UN staff members, of more or less equal professional status.

Parallel SI transcripts

##	SL message	New York version	Buenos Aires version
1.1	I should like	Я хотел бы	Я хотел бы
1.2	to inform the conference	проинформировать конференцию	проинформировать членов конференции
1.3	that this morning	что сегодня утром	что сегодня утром
1.4	the United Nations	Организация Объединённых Наций	Организация Объединённых Наций
1.5	with the co-operation	в сотрудничестве	при сотрудничестве
1.6	of the United States National Aeronautic and Space Administration	*с Соединёнными Штатами…* '***with the United States…***' *Национальной администрацией по космосу и аэронавтике США*	*с Национальным агентством по космическим исследованиям Соединённых Штатов – НАСА* '***with*** (***the***) ***National Agency on space explorations*** (***of the***) ***United***

(*continued*)

##	SL message	New York version	Buenos Aires version
	(NASA)	'(***with the***) ***National administration on space and aeronautics*** (***of***) ***USA***'	***States – NASA***)
1.7	the Communications Satellite Corporation (COMSAT)	Корпорацией спутников – Комсат	и с КОМСАТ
1.8	the ENTEL of Argentina	и ЭНТЕЛ, Аргентина	и ЭНТЕЛ, Аргентина
1.9	are conducting an experiment	проводят эксперимент	проводят эксперимент
1.10	in remote interpretation	по переводу	по дистанционному переводу
1.11.	via satellite	через спутник	через спутник

By the time this announcement is about to begin (after the floor is given, yet before the actual beginning of the statement) *pragmatic factors have already come into play*. When the floor at a conference is given to a representative of the Secretariat, this very fact has some pragmatic implicatures, since we know that the role of the Secretariat is to perform the collective duty of the participants: for example, report on the implementation of former resolutions, supply and introduce the necessary documents and materials, and render any needed services.

The interdependency between SI situational factors and the discourse semantic structure in helping to understand the *imminent message* may be represented as shown in Figure 9.

Segments 1.1–1.2 confirm this broad hypothesis, and at the same time characterise the forthcoming discourse as informative in nature (in contrast to most delegates' contributions, which are evaluative).

Segment 1.3 introduces the temporal zero reference point of the deictic world ('this morning'), which allows the situational inference that a new topic is about to be introduced in the work of the conference. At this point a hearer might infer either that the speaker is going to introduce a new Secretariat working document, or that he is going to mention something being arranged by the Secretariat. The first assumption would be more readily made by the New York (NY) interpreter than by her Buenos Aires (BA) colleague, who has not seen any new documents in the conference room, and would therefore be

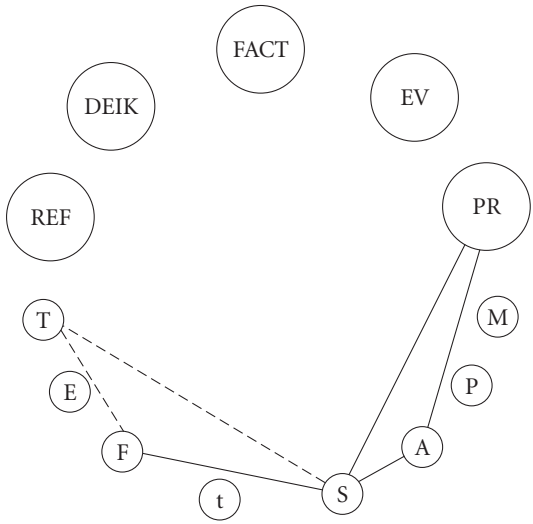


Figure 9. Interdependence of SI situational factors and discourse semantic structure at the moment the floor is given to the speaker, but before the actual beginning of the speech

more likely to draw the latter inference. In both cases, there is a basis for some preliminary inference in an attempt to predict the forthcoming topic of the statement.

The interdependence between the situational factors and discourse semantic structure at this point, as the discourse begins to unfold, may be represented as in Figure 10.

The mention of NASA in segment 1.6 introduces a specific discourse topic, as confirmed via extralinguistic inference from a situational factor, viz. that the New York (NY) interpreter is already interpreting via satellite and the Buenos Aires (BA) interpreter is working concurrently from the same speech. This licenses the strong anticipation of a rheme about the remote SI experiment, which is immediately vindicated in (1.7) and (1.8).

The interdependence at segment 1.6 may be represented as in Figure 11.

Finally, in segments 1.9–1.11, the rheme of the utterance reveals the point of the announcement. This is also confirmed by the grammatical category of indefiniteness in the phrase *an experiment*, opening the prospects for its imminent development in the world of the discourse. Thus the very first utterance contains a certain amount of situational and contextual redundancy

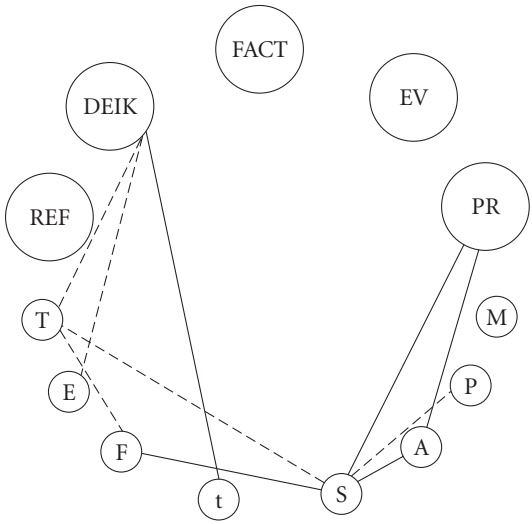


Figure 10. Interdependence between situational factors and discourse semantic structure as the discourse begins to develop (segment 1.3)

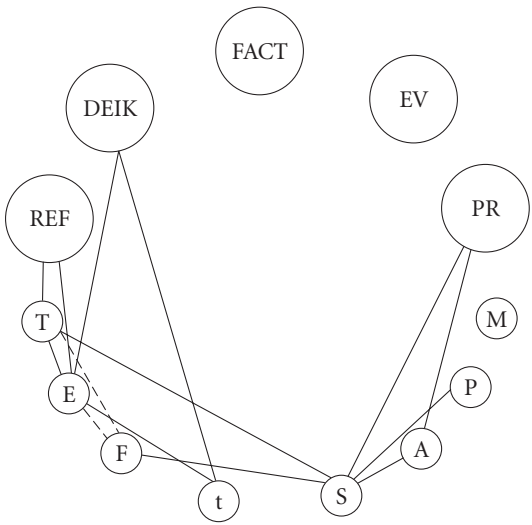


Figure 11. Pattern of interdependence between factors at segment 1.6

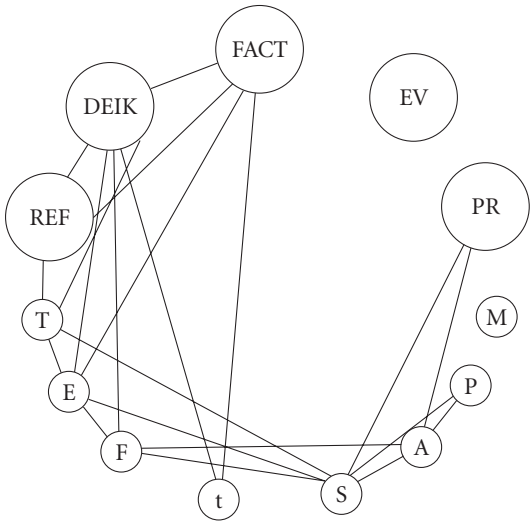


Figure 12. Interdependencies between SI situational factors and discourse semantic structure components by the end of utterance (1)

(even *before* the discourse actually commences), the details of which are subjectively somewhat different for the NY and BA interpreters.

The pattern of interdependencies between factors by the end of this utterance may be represented as in Figure 12.

The next few sentences and their interpreted versions can be analysed on the same principles. We will confine ourselves to a brief comment on the confirmation in the discourse (utterance 13 – see Appendix A) of the pragmatic implicatures arising from the fact of the floor being held by a representative of the Secretariat, as mentioned earlier:

Segment 13, '*Delegates are requested to speak clearly and slowly…*' fleshes out the pragmatic profile: a Secretariat official's function is to implement the collective will of Member States as expressed in UN resolutions, which explains his asking for their indulgence. The utterances that follow serve the same pragmatic objective, indicating that the Secretariat is ready to serve the delegates.

Here is another later passage from the same speaker's remarks:

##	SL message	NY rendition	BA rendition
3.1	…During the experiment	В ходе эксперимента	Во время эксперимента
3.2	the voice of the speaker	голос оратора	голос оратора
3.3	in the plenary	на пленарном заседании	на пленарном заседании
3.4	is being sent via satellite	передаётся по спутнику	передаётся через спутник
3.5	to New York	в Нью-Йорк	в Нью-Йорк
4.1	The interpretations	*Переводы. . . в залах “А” и “Б”* ‘*translations . . . in rooms A and B*’	*Перевод, который вы слышите*
4.2	heard in *salas* A and B	*. . . которые слышатся в залах “А” и “Б”* ‘*. . . which* (*are*) *heard in rooms A and B*’	*‘the translation which you hear’* *в залах “А” и “Б”* *‘in rooms A and B’*
4.3	are originating at the United Nations Headquarters in New York. . .	делаются в Нью-Йорке в центральных учреждениях ООН	делается в Центральных учреждениях ООН в Нью-Йорке
6.1	…At times	Иногда	Временами
6.2	the interpreter booths	. . .	. . .
6.3	in the conference room	. . .	. . .
6.4	will also be used	*будут также использоваться и кабины переводчиков в зале заседаний* *‘will also* (*be*) *used interpreting booths in* (*the*) *conference room’*	*будут подключаться также и кабины переводчиков здесь в зале* *‘will tune in also interpreting booths here in* (*the*) *room*
7.1	The communications links	Связь	Связь
7.2	established between	. . .между	установленная между
7.3	the COMSAT station in Buenos Aires	станцией в Буэнос-Айресе	станциями КОМСАТв Буэнос-Айресе
7.4	and the NASA station in New York	и станцией НАСА в Нью-Йорке	и станцией НАСА в Нью-Йорке
7.5	include	включает	включает
7.6	one color-television channel	один канал цветного телевидения	один канал цветного телевидения
7.7	and eight voice-grade channels	и восемь голосовых каналов	и восемь каналов, передающих звук и голос
7.8	in both directions	в обоих направлениях	в обоих направлениях
8.1	The satellite links	Спутниковая связь	Связь через спутник
8.2	terminate	имеет свои терминалы	имеет терминалы
8.3	in this conference room	*здесь в зале* *‘here in the room’*	*здесь в этом зале* *‘here in this room’*

(*continued*)

##	SL message	NY rendition	BA rendition
8.4	and the interpretation center in New York…	*и в… центре, в Нью-Йорке* *'and in … (the) centre, in New York'*	*и в Центре переводов в Нью-Йорке* *'and in (the) Interpretation Centre in New York'*
13.1	…Delegates	Мы просим	Делегатов
13.2	are requested	делегатов	просят
13.3	to speak clearly and slowly	говорить медленно и ясно …	говорить медленно и ясно …
13.4	and to face the microphones		
13.5	at all times	и постоянно	и постоянно
13.6	during their statements	в ходе своих заявлений говорить в микрофон	говорить в микрофон в ходе своего выступления
16.1	…The United Nations Secretariat	Секретариат Организации Объединённых Наций	Секретариат ООН
16.2	wishes to thank	хотел бы поблагодарить	хотел бы поблагодарить
16.3	all the delegations	все делегации	все делегации
16.4	for their co-operation	за их сотрудничество	за их сотрудничество
16.5	in the successful conduct	в успешном проведении	в успешном осуществлении
16.6	of this experiment	настоящего эксперимента	данного эксперимента

The interpreters' knowledge about the SI communicative situation can be traced in their versions. One should remember that both the NY and BA interpreters have been informed of the goals of the experiment in advance. However, unlike her NY colleague, the BA interpreter is also aware of many specific arrangements and details of the conference on site in Buenos Aires (location and numbers of conference rooms, booths, etc.), and the impact of this additional situational awareness can be traced in several passages:

(4., 4.2) The NY interpreter hesitates (*Translations in rooms A and B…*) and makes a correction (*which are heard in rooms…*), while the BA interpreter continues without any hesitation.

(6.4, 8.3) The BA interpreter can be more specific and emphatic (*HERE in this room*) based on her local knowledge.

(8.4) The NY interpreter, who is actually sitting in the smallest and least convenient room in the basement of the UN Headquarters in New York, hesitates to give it the title 'Interpretation Center', which the BA interpreter, unaware of the working conditions of her New York colleague, does not hesitate to render word for word.

The peculiar feature of this example is that the discourse actually describes the communicative situation of the session, or one of its aspects.

We have by now introduced all the factors which contribute to objective (linguistic) redundancy in the semantic structure of discourse, as well as several factors that significantly increase the redundancy of the discourse for an individual receiver by providing a basis for her to make inferences using her cognitive thesaurus and knowledge of the communicative situation and thus benefit from a further, subjective degree of discourse redundancy.

The hearer (in our case, the simultaneous interpreter) makes inferences, based on her knowledge of these factors, about the content, the purpose and often the motive underlying the discourse and its place at the conference. Further interaction between all the factors described increases the overall degree of discourse redundancy to a level which makes it possible for the interpreter to perform effectively in extreme SI conditions.

The redundancy of the message is precisely the necessary and sufficient condition for the operation of the psycholinguistic mechanism of message development probability anticipation, which allows for message perception and comprehension.

Chapter 6

A probability anticipation model for SI

27. The principle of anticipatory reflection of reality

Our hypothesis is that the basic mechanism making SI possible is the probability anticipation of the development of the message. A theoretical starting point can be found in the basic tenet of the Theory of Activity in the Russian school of psychology, which holds that mental activity, specifically perception, is driven by a basic principle of *anticipatory reflection of reality*. According to this principle, an organism tends to anticipate events in the outside world as 'a basic way of adjustment of all life forms to the spatio-temporal structure of the inorganic world, in which sequentiality and iteration of events constitute the basic parameters of time' (Anokhin 1978: 18).

Anokhin assumes that in the process of evolution all living beings, including the highest life form, *homo sapiens*, acquired their adaptive characteristics under the influence of these parameters, and indeed, that the recurrence of sequences of stimuli affecting living organisms was vital for their survival:

> . . .if in the outside world several specific events develop in sequence (such as seasonal rhythms, temperature changes, or ocean streams), an organism must reflect each of them in specific chemical transformations of its protoplasm whenever the event reaches a certain threshold [. . .] An opportunity arose for the development of certain advantageous chain reactions, i.e. reactions with discriminatory catalytic acceleration, above all those essential for survival, that repeated themselves many times under outside influence [. . .] This acceleration of reactions [. . .] may reach the value of hundreds of millions and even billions of times [. . .] [As a result,] certain recurrent sequences of outside stimuli, even though they might be separated by long time intervals, acquired a possibility to be reflected in fast chemical transformations of the substance in accordance with the physical and chemical properties of the stimulus [. . .] There appeared very fast reflection (in the chains of chemical reactions) of slow events developing in the outside world [. . .] Protoplasms acquired the capability to reflect in micro-intervals of their chemical reactions those events of the outside world which, due to their very nature, might be developing, on the contrary, in macro-temporal intervals. (op. cit.: 14–16)

According to Anokhin, if there is a sequence of events *A, B, C, D, E* and *F* whose impact on a living organism directly affects its survival, and to each of which the organism reacts with a chemical change (*a, b, c, d, e*, and *f* respectively), then, as a result of the development described above, the very first event *A* would immediately cause the start of a chain of chemical reactions in the organism $a \rightarrow b \rightarrow c \rightarrow d \rightarrow e \rightarrow f$, so that by the time event *F* occurs in the outside world, the organism is well prepared for the change.

As life evolved on earth, this led to the appearance of an organ specialised for accelerated reaction to these outside changes: the nervous system, which eventually developed into the central nervous system and human brain, resulting in the emergence of a 'completely new quality of the adaptive function of the brain – the ability to make plans for the future' (op. cit.: 18–19).[1]

28. Message development probability anticipation

The concept of probabilistic anticipation in human behaviour and human speech was first put forward within the framework of information theory, based originally on the principle by which the greater the number of possible alternatives at a certain point, the higher the information value of the alternative chosen. This concept in its mathematical form was applicable to so-called Markov chains, linear sequences of item-to-item transitions. As applied to human behaviour, including verbal activity, the concept was developed in the Russian school of psychology by A.N. Leont'ev, Bernstein and others.

The idea of probability anticipation as a psychological mechanism underlying many types of human activity is described in detail in several publications, e.g. E. Sokolov (1960), Feigenberg (1963, 1973); Feigenberg and Zhuravlev (1977), Zimnyaya (1970a, 1973, 1974a, b, 1978). Feigenberg and Zhuravlev describe *probability anticipation* as follows:

> Past experience and the current situation supply grounds for hypotheses about forthcoming developments, a certain probability being ascribed to each of the latter. In accordance with such a prognosis the subject is set, or prepared, for such actions in the forthcoming situation that would help attain a certain objective with the highest probability. (Feigenberg & Zhuravlev 1977: 3)

Probability anticipation covers a wide range of states and situations in human activities, from forecasting outside events in the world or the results of one's own actions and evaluating these projected results from the viewpoint of a

desired (or required) future, to the anticipation of one's own expenditure of time and effort to attain an objective (op. cit.: 4–5).

As various authors have indicated,[2] the application of the concept of probability anticipation to speech is problematic, mainly because speech is not equivalent to a Markov chain or simple linear sequence of random elements, to which the mathematics of probability theory typically apply. A way out of this difficulty might lie in postulating that the mechanism of message development probability anticipation is a *multi-level* mechanism, operating on a hierarchy of levels. Speech is not merely a simple chain of phonemes, or morphemes, or word forms, but a linear development of a whole hierarchy of heterogeneous components, including not only sequences of sounds (phonemes encoded in syllables), but also interdependent semantic components, such as the contents of words, phrases and utterances, as well as certain higher-order semantic units, or units of sense, within each utterance and the discourse as a whole.

As applied to simultaneous interpretation, the basic idea is that in the process of aural perception of speech, the simultaneous interpreter's brain *generates hypotheses in anticipation of certain verbal and semantic developments of the discourse.* These hypotheses are based on subconscious subjective estimates of the range of probabilities within which the given verbal or semantic situation can further develop. In subsequent processes the interpreter either confirms or rejects her hypotheses by checking against critical points of the on-going discourse, concurrently on several levels.

We will postulate the following hierarchy of speech levels as a basis for the probability anticipation mechanism in SI:

syllable – word – syntagm[3] *– utterance – discourse*

First, however, we must explain why the potential for verbal and semantic anticipation in receiving a discourse depends on its degree of redundancy (or, conversely, its information content): the higher the redundancy of the discourse, the higher the probability of correct anticipation of its development at each level. The reverse is also true: the higher the information density of the discourse (*informativity* is the term used by Beaugrande & Dressler 1981/1986), the lower the probability of correctly forecasting its development.

29. Multilevel redundancy and probability anticipation

Since anticipatory reflection of reality is based on recurrent sequences of outside stimuli (i.e. on the sequentiality and iteration of events), message

development probability anticipation becomes possible only in conditions of speech redundancy.

Redundancy is a concept in mathematical statistics; its application to speech communication is explained in a classic definition by George Miller:

> If the successive units in a message are related, if the probability of a unit depends upon the units that precede it, these relations reduce the amount of information that a single unit can carry [...] contextual dependencies mean that the message source is repeating itself. More symbols are being used to encode the message than are theoretically necessary. We express this fact by saying that most languages are ***redundant*** [...]; a large degree of interdependence among the successive units of a language means that parts of the message can be lost or distorted without causing a disruption of communication. (Miller 1951/1963: 103)

Statistical studies of language use provide data on redundancy levels in language, or to be more precise, in speech. According to statistical work done in Russia (Piotrovsky 1968, 1975), the amount of information per unit of human perception shrinks rapidly (i.e. redundancy grows rapidly) with increasing levels of perception. Piotrovsky shows that when a text is perceived visually, raising perception by just two levels – from a set of black dots to a letter to a word – reduces the amount of information per unit (i.e. increases the redundancy) by a factor of 100 (from 1,200 to 12 bits of information for a word six letters long). For a word in context, redundancy is even higher.

Language redundancy was then thought to be of the order of 70 to 85% (Piotrovsky 1968: 58). More detailed data are quoted for several European languages: 72.1–83.6% for Russian, 71.9–84.5% for English, 70.6–83.4% for French (Piotrovsky 1968: 58). According to Burton and Licklider (1955), the redundancy coefficient for English lies between 67 and 80%, a comparable figure. These figures concern the language in use as a whole; however, particular functional styles tend to have higher redundancy values. For instance, the redundancy in business correspondence texts was estimated to be 83.4–90.1% for Russian, 82.9–92.1% for English and 83.9–90.4% for French. Specialised discourse, technical and scholarly styles, normally displays higher than average redundancy due to the smaller number of words used and recurrent terms and phrases (Yaglom & Yaglom 1973: 267). According to Frick and Sumby (1952), redundancy in radio exchanges between airline pilots and air traffic controllers is close to 96%.

Thus we see that the narrower the topic of discourse which is characteristic of a given functional style, the higher the redundancy of the message. Redun-

dancy is highest in coherent discourse. As the experimental data in Chapter 11 will show, the coherence of the SL discourse generated by the unity of the speaker's topic and communicative intent (in contrast to a series of unrelated utterances) is a necessary condition for the success of the SI process. Greater thematic, contextual and situational interdependency among symbols in a specific discourse reduces the amount of information per unit of the message, leading inevitably to a higher overall level of message redundancy. However, the overall message redundancy may still not be sufficient for successful SI, even with the full engagement of higher levels such as redundancy due to familiarity with the communicative situation. Thus, simultaneous interpretation of poetry is impossible because of the very low level of objective redundancy in poetic language. Even SI of prose is barely possible if the style is literary. As for movies, it is common knowledge that SI is generally only feasible after appropriate preparation by the interpreter.

The redundancy values quoted above are generally accepted, but they were obtained using the methods and mathematical apparatus of *statistical probability* applied to Markov chains, or random sequences of symbols where the amount of information that a symbol *X* carries in relation to symbol *Y* is the numerical value expressing the 'unpredictability' of *Y* after obtaining *X*, in other words a transition probability for *X* to *Y*. It has been argued by many authors (e.g. Beaugrande & Dressler 1986), and is now also widely accepted, that statistical probability is not really applicable to discourse, which is not a Markov chain.

Intuitively, however, the notion of probability seems to be a completely valid concept to describe the degree of anticipation of message development which is possible for a hearer. There have been several attempts to describe this process in relation to discourse. Some authors have suggested the idea of estimating *semantic information*, or *pragmatic information* (Cherry 1966; Shreider 1965, 1974). Shreider suggests that the amount of semantic information in a text T could be compared to the amount of semantic information in the hearer's memory, or (Th), to measure the degree the thesaurus changes under the impact of an operator I corresponding to a text T, according to the formula *T: I (T,Th)* (Shreider 1965: 234).

We can basically adopt the notion of *contextual probability* proposed by Beaugrande and Dressler (1981/1986) to describe 'what classes of occurrences are more or less likely under the influence of systematic constellations of current factors' (op. cit.: 140–141). Instead of numerical probability values, they propose considering a range of general probabilities, higher or lower on an approximate scale.

Redundancy (vs. informativity) may be traced at each of the speech levels described earlier. Considerable redundancy is observed with speech sounds. The actual perception of speech begins at the level of the syllable: many consonants are recognised only in a syllable at the transition to the following vowel (Chistovich 1965; Zhinkin 1967; Miller 1981). Massaro (1975, 1978) has shown that while vowel, consonant-vowel, and vowel-consonant syllables are the only primary perceptual speech units,[4] only 42 ms is enough (30 ms of transition plus 12 ms of steady-state vowel) to identify any syllable reliably, out of a total duration for most syllables of 200 to 250 ms.

Each higher speech level brings more redundancy: not only of its own, level-specific, kind but also whatever is due to additional interdependencies between the levels. Redundancy at the levels of the *word, syntagm,* and *utterance* is linguistic, part of the objective redundancy of a discourse. The level of the syntagm is special in this respect. Apart from being a phonetic unit with its own intonational contour, it is also a unit of sense,[5] hence semantic aspects of the discourse start playing a growing role in the overall redundancy of the message at this level.

Having established these preliminaries, we can now turn to the SI process.

30. Cumulative dynamic analysis (CDA) and the range of probability anticipation

The perception of a message is a continuous step-by-step process of retrieval of the sense or semantic structure of the discourse. The discourse itself consists of discrete utterances, each of which, being grammatically a sentence, is an expression of a 'complete idea'. However, in the body of the discourse the idea in each utterance is 'complete' only relatively; rather, each utterance expresses an idea which is closely and inseparably linked with the preceding and subsequent ideas, at least for the duration of a theme or its subdivision. One of the most important characteristics of a discourse is its semantic coherence, the sense of the whole. This depends on several unities in its semantic structure:

1. first and foremost, the unity of its *co-referential* substructure, or the extent to which each utterance in the discourse deals with the same matter, the same object of thought, within the framework of the same topic;
2. the unity of its *deictic* universe;
3. the uniformity of *value judgements* about the objects of thought and their configurations (facts and events);

4. a single *pragmatic* framework;
5. *factive and modal* unity, or consistent relations of factive and modal components to the same referents: for example, if an event or action is once mentioned as having already occurred or existed, it cannot later be referred to as only a future possibility.

Given such coherence of the semantic structure, comprehension of the SL message (generating the interpreter's 'internal programme' for each TL utterance) can be achieved via a dynamic and cumulative process of inferencing which, though continuous and subconscious, comprises discrete portions. Linguistic inferences from the discourse so far received may be based on all types of semantic components, lexical or categorial, and their configurations. Following Chafe's rule, such inferences naturally go beyond the limits of each separate utterance to embrace whole thematic or sub-thematic passages in the discourse. The result is an accumulation of linguistic inferences that not only correlate with cognitive inferences, but are also stored in their own right, culminating in generalised cognitive implicatures (see §25 above on the interpreter's learning curve during the unfolding discourse). Let us consider an example from the beginning of a statement by the representative of a developing country at the UN General Assembly (the whole discourse comprised 31 utterances).

(1) *Mister President, Distinguished ladies and gentlemen,*

(2) *I would like to touch on a problem which in many ways bedevils the developing countries in Asia, Africa and Latin America.*

(3) *Since the adoption of the resolution on the Development Decade, this General Assembly has increasingly turned its attention to the great problem of disparity between the standards of living of the developing and the developed countries.*

(4) *The turning point came in 1964 when at the first session of the UN Conference on Trade and Development the international community took a pledge to tackle this problem in a systematic and concerted manner and gave itself the machinery and the framework of a dynamic international policy for achieving this purpose.*

(5) *The United Nations Conference on Trade and Development has completed two years of existence.*

(6) *The progress in the implementation of the recommendations adopted at the first session of the Conference has been disappointing.*

(7) *The annual report of the Secretary General of UNCTAD to the Trade and Development Board which has just concluded its session in Geneva shows*

that the developed countries lack the will to implement the recommendations of the first UNCTAD.

(8) *The crisis of rising expectations in the face of diminishing will will get further aggravated and will lead to such deep frustration that it may shake the very foundation on which the international community is trying to build a new world order and lasting peace.*

Let us now try to explicate step by step the processes required for the comprehension of utterance (8) under the constraint of the limitation of working memory to 7 plus-or-minus two units of information (Miller 1956). The steps suggested below are hypothetical, of course, but these or similar steps in the retrieval of the semantic content are logically necessary.

The theme of utterance (8), *the crisis of rising expectations in the face of diminishing will*, is introduced with the definite article *the*, presupposing that the theme has already been foregrounded in the referential substructure. This requires some explanation. The content of the theme of utterance (8) is comprehensible only on the basis of the (approximate) inference that the developed countries as a group agreed to implement the UNCTAD resolution, from utterance (4):

'the international community took a pledge to tackle this problem…'

It can be further inferred from utterances (4), (5), and (6) that the developing countries as a group had thus begun to look forward to a solution to their problem. This 'problem' is described in utterance (3) as the gap in living standards between the developed and developing countries. Since this gap is a problem for the developing countries, not the developed ones, it is clearly about *low* living standards in the developing countries, i.e. their underdevelopment. This cognitive inference can be made by the interpreter using background or world knowledge; the other implicatures are inferred from the linguistic semantic content of the text.

Strictly speaking, the theme of utterance (8) itself presupposes, in its components *rising expectations* and *diminishing will*, that the expectations of the developing countries have risen while the will of the developed countries to implement the resolution has diminished. The hypothetical next logical step might be that this state of affairs ***constitutes a crisis.*** Such a procedure – let us call it hypothetical inferencing for comprehension – yields a paraphrase of the semantic content of utterance (8) which as it were 'reveals the history' of the semantic configuration as it has emerged so far, though it does not follow directly from the explicit content of the previous utterances.

The definite article before the noun *'crisis'* which constitutes the thematic subject of the sentence (although it is mentioned for the first time in the passage), and its limiting post-modification '…of rising expectations…' dilutes the thematic nature of the sentence subject and motivates the recourse to inferencing. The combination of the definite article and the limiting attribute is a sign of the deep *rhematic* nature of the subject at the zero (surface, explicit) level, signalling the need for a deep operation of the type *…is a X → this X is*… In other words, it contains a foregrounding presupposition and signals to the hearer (or the interpreter) the possibility of an appropriate inference.

This kind of analysis reduces the utterance to 'elementary' utterances (or propositions) – 'expectations have risen' (from 3), 'the will (to follow through) has diminished' (from 6), etc., revealing the themes and rhemes of each next (deeper) reduction level. Then the structure is again 'reconstructed' to a level higher than the original (surface, explicit) level, in which combinations of propositions can then be referred to as *this*, *it*, or *this fact*.

This method can be applied to the whole discourse, as long as the empirical rules governing such analysis are consistently adhered to. Zhinkin wrote:

> A text always contains sense gaps, whose size will be determined by the level of mutual understanding between the communication partners. Very often, for example, the author, while transforming one formula into another, skips over certain steps of the transformation, counting on the reader to do so [too]. In psychology such a compression of the text is called the reduction of intermediate operations. (Zhinkin 1970: 75–76)

The interpreter does not receive the discourse as a whole; she receives it gradually, utterance by utterance. Consequently, the perception of the discourse semantic structure is a dynamic process effected through:

a. successive addition of new semantic components to those already received: with each act of predication, a foregrounder rheme is added to the foregrounded theme, the process being completed by the emergence of a new unit of sense;
b. 'bridging the sense gap' through conscious or subconscious reduction of the surface semantic configuration to deep and more elementary components;
c. successive foregrounding of an ever wider range of potential relations in the sense structure of the discourse with the appearance of new semantic components;

d. subconscious inference of relations between the discourse semantic structure and its situational context, based on the interpreter's previous experience and her background knowledge;
e. gradual construction on this basis of an ever more clear-cut and developed hypothetical semantic structure for the discourse as a whole.

These assumptions form the basis for the following loose rules of semantic transformation used in modeling the *cumulative dynamic* (*semantic*) *analysis* (CDA) of the discourse that we postulate for the interpreter.

1. The level of the main utterance of the discourse where the first semantic component is mentioned is taken as the zero level, and the theme (TH) and foregrounder rheme (RH) of that level are also assigned zero rank.
2. The theme TH at each level is a result of the previous act of foregrounding (predication, in a different terminology). Consequently, it is a product of the relations established between the two components of either the preceding utterance in the discourse – or, when there is a sense gap, between the two components (TH and RH) of a deeper level. This act of foregrounding may be expressed as TH + RH. In principle such 'in-depth' analysis might be pursued down to the tiniest 'sense atoms', but in practice the depth of reduction is determined by the specific need to bridge the sense gap.
3. Certain semantic components basic to the discourse are supplied by experience and situational context. Their rank remains constant thereafter, both in the utterance analysed and the discourse as a whole. Examples of such configurations of semantic components in the text quoted above include *developing countries* and *developed countries*.
4. An act of foregrounding (TH_n + RH_n) yields a configuration of a higher rank (n+1) than TH – TH_{n+1} or TH1. The theme TH_{n+1} is a higher-rank configuration, where the original thematic component TH acquires a new property, becoming a complex synthetic symbol enriched with new links to other components and their configurations. At the surface-syntactic level, the former noun phrase and verb phrase assume the place of the noun and its attribute in TH_{n+1}. For example:

expectations rise
→ *rising expectations* (TH + RH) → TH_{n+1}
the first UNCTAD adopted recommendations
→ *the recommendations of the first UNCTAD* (TH + RH)

→ *the recommendations of the first UNCTAD were to be implemented* (TH_{n+1});
→ *the implementation of the recommendations of the first UNCTAD* ($TH_{n+1} + RH \rightarrow TH_{n+2}$).

In certain cases, the foregrounding (TH + RH) may lead not to a higher-rank theme, but to the appearance of a new thematic element TH_{n-1}, whose relation to TH is indirect and more complex. For example:

... the report... shows that the developed countries lack the will
→ *the fact that the report shows that...*
→ *this fact*

where *this fact* may incorporate, for example, the speaker's interpretation of the report's message.

5. Irrespective of whether we obtain a higher-rank TH or a new thematic configuration, the result of foregrounding is that the foregrounder immediately disappears, 'dissolving' as it were either in the new TH or the higher rank TH_{n+1}.
6. The combination of several utterances results in enrichment of the semantic structure and the appearance of more abstract configurations, of the type TH + RH, of a rank higher than zero (n+1, n+2, etc.). This makes it possible to single out microtopics and subtopics, and finally, the topic of the discourse. Such abstract structures amount to a summary of the discourse: they model the discourse's hypothetic semantic structure, serving as an additional source of probability anticipation of the discourse content by providing an additional level of redundancy.
7. Since the maintenance of such an abstract structure is a necessary condition for comprehension of the discourse, but working memory is limited, the level of abstraction depends on the interpreter's working memory capacity, so that the number of information units concurrently operative will never exceed 7 plus-or-minus 2.[6]

Analysing utterances (2) to (4) of the above extract on this basis, it appears that the rheme of (2) – *a problem which in many ways bedevils the developing countries* – becomes the main topic of discourse in utterances (3) and (4), enriched with new properties and gradually turning into a complex thematic entity which could be roughly explicated as '*a grave multidimensional problem of which one aspect is low living standards, causing concern to developing countries, to the speaker and the United Nations*'. This complex configuration

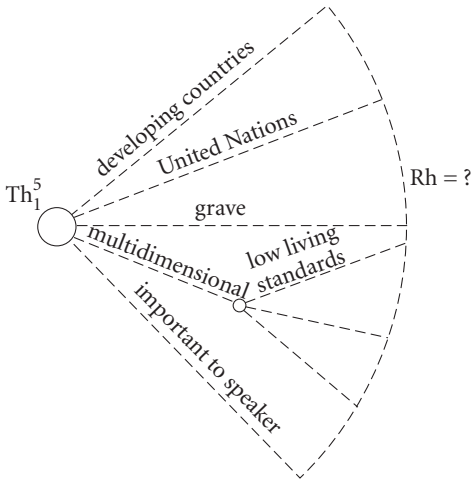


Figure 13. Range of vectors for probability anticipation of semantic development, open 'to the right'

of semantic components may be graphically represented as a small circle, with dotted lines showing the vectors of probabilistic anticipation of its semantic development in the discourse (Figure 13).

The chart represents a complex configuration of semantic components with projected links to possible other semantic components, or their configurations – in other words, an open range of probability anticipation.

As a result of such cumulative dynamic analysis of the discourse semantic structure, a certain complex semantic configuration lingers in the interpreter's mind, along with projected probable links to other probable semantic components and their configurations, limited by the thematic framework of the discourse. Together they comprise a *range of probability anticipation* open 'to the right', i.e. to the subsequent discourse. This range quite satisfactorily correlates with a summary of the full discourse obtained through four successive reductions of the original text obtained by striking out repetitions and insignificant details and paraphrasing:

> *The developing countries have a grave multidimensional problem of underdevelopment and a gap between themselves and the developed countries. The first UNCTAD adopted recommendations for solutions, but the developed countries lack the will to implement them. The developing countries are disappointed, since they cannot modernise their societies.*

CDA is, of course, a hypothetical approximation to the processing reality, but it is supported by its compatibility with several empirically established facts:

1. It is widely accepted in psychology that the total amount of information humans can retain in their working memory increases considerably as this information is structured into a smaller number of informationally denser units (Miller 1963; Lindsay & Norman 1972/1974).
2. Some applied AI models of 'machine understanding' of texts and information processing impose thematic and/or situational limitations on the range of possible prognostication, through frames, schemata, scripts, etc., and employ a mechanism of semantic inferencing.
3. There is experimental evidence in psychology that additional time is required to overcome sense gaps and *lacunae* in a message. Miller (1981: 138–139) reports a simple experiment in which subjects were asked to read paired sentences one after the other and signal when they had understood them, and the response time from presentation to comprehension was recorded. Two kinds of pairs were used. One kind involved simple anaphora:

   John ordered some beer. The beer was warm.

   The other required the comprehension of an implicature:

   John ordered some lunch. The beer was warm.

   In the first, 'the beer' is an anaphor for 'some beer' in the preceding sentence. In the second, there is no antecedent for 'the beer'; but the implication is that John ordered beer with his lunch. Finding implicatures to leap the gaps between these sentences takes a significant amount of additional time.[7] Data obtained in an experimental study of SI provide evidence to the effect that semantic components initially introduced into discourse as rhemes of the zero surface level of utterances are rendered in SI significantly more often than those whose rhematic nature is hidden at the deep level and requires inferencing and bridging the sense gap in discourse. In simultaneous interpretation performed by 10 subjects, analysis of 11 semantic configurations representing main thematic components of the discourse showed 80 to 100% correct renditions when the component was first introduced as a rheme at the surface level; when the component was introduced as a dependent member of the surface theme (as an attribute or a complement) the percentage of correct translations dropped to 30 or

40%. Failures were also observed at every 'sense gap', or sense lacuna, which is tantamount to a decrease in the redundancy level.

4. Languages always have a range of means of generalisation, as for example through the use of generic instead of specific terms. Periphrasis is also common in natural language, e.g.:

   the United Nations adopted a resolution
   → *the adoption of a resolution by the United Nations*
   → *that the United Nations adopted a resolution*
   → *the fact that the United Nations adopted a resolution*
   → *this fact*

   (Compare: *this idea, this situation, this provision, this concept, this assumption, this hypothesis*, etc.)

The model of cumulative dynamic analysis of the discourse semantic structure is rooted in inferencing and is a representation of the comprehension process by the simultaneous interpreter from that angle. Each step in the CDA is an inference made from the preceding part of the discourse and at the same time a step towards constructing the semantic structure of the whole discourse. Each CDA step opens a range of probability anticipation 'to the right' and signifies a step towards the comprehension of the discourse in its totality.

31. Towards the internal programme for the TL utterance

Cumulative dynamic analysis of the SL message generates an internal programme of the TL utterance (or in some cases, part of it), which is the initial stage of speech production in TL by the simultaneous interpreter. Due to the heuristic and individual nature of CDA, the correlation of the SL semantic structure mentally constructed by a simultaneous interpreter and the internal programme of the TL utterance produced cannot be the same for all interpreters. Still, the number of alternatives, at least in a general form, is finite, and to the extent of our knowledge of possible results of the CDA, we may assume regularities in the transition. These regularities may be formalised.

Let TH signify the thematic (foregrounded) semantic component or configuration of semantic components, and SL TH (m) the initial thematic component or configuration of components. Let us denote all subsequent thematic components resulting from CDA as SL TH(m+n), assuming the (m+n) to be a more complex configuration than (m). Then, transiting from the SL seman-

tic structure to the TL utterance-internal programme, we obtain one of the following:

(1) SL TH (m+n) → TL TH m+n

which results in fully equivalent SL and TL semantic structures; or

(2) SL TH(m+n) → TL THm

involving a measure of generalising, due to the repetition of a previously foregrounded semantic configuration without its enrichment by a new component; or

(3) SL TH(m+n) → TL THn

with the loss of a previously foregrounded component(s); or

(4) SL TH(m+n) → TL THk

where there is some regrouping of semantic components in the configuration, possibly providing an extended basis (a greater range) for probability prediction and, correspondingly, a longer range of advance synthesis, in which 'k' may or may not be equivalent to (m+n), but will always be a synthetic configuration structurally less complex than (m+n).

This formalisation should always be kept in mind in the further analysis of the process of TL discourse production. Formulas (1), (2), (3), (4) do not include the rhematic component, since by definition the rheme (RH) is a new foregrounding component which exists for the hearer only as a transient element, reflected in our formulas as (n), an already foregrounded component.

In substantive terms,

– Formula (1) yields the most scrupulous rendering of the configuration, which may cause difficulties due to differences in valencies and government between SL and TL;
– Formula (2) results in an error in rendering the sense of the SL utterance (but not necessarily of the discourse semantic structure as a whole), due to the absence of the RH component;
– Formula (3) represents speech compression (a reduced number of references to the thematic components in the TL structure); and
– Formula (4) represents the longest possible range of probability anticipation, while the TL result may be either compression or sense distortion.

Formulas (1) through (4) offer a general view of the transition from the sense of the SL message to the simultaneous interpreter's internal programme

of the TL utterance – the first stage in the production of the TL utterance. Further important stages still remain ahead, and hurdles caused by structural differences between the source and the target languages (in semantics, syntax and the search for lexical equivalents) are still to be overcome.

Chapter 7

Theme and compression

32. The thematic (referential) component of discourse in SI

The Theme or thematic substructure of a discourse is the first layer of its semantic structure, the designation of something about which the communicative message unfolds; as Zhinkin puts it, 'one and the same subject matter will be dealt with in a number of sentences in the text [. . .then] another subject matter is introduced in the next sequence of sentences.' Zhinkin offers an example from Pushkin, but the point can equally well be illustrated in English in a well known children's classic:

> *First, she* [*Alice's sister*] *dreamed about* ***little Alice herself****: once again* ***the tiny hands*** *were clasped* ***upon her knee****, and* ***the bright eager eyes*** *were looking up into hers – she could hear* ***the very tones of her voice****, and see* ***that queer little toss of her head*** *to keep back* ***the wandering hair*** *that would always get* ***into her eyes*** *– and still as* ***she*** *listened, or* ***seemed to listen****, the whole place* ***around her*** *became alive with THE STRANGE CREATURES of her* ***little sister's*** *dream.*
>
> *The long grass rustled at her feet as the White Rabbit hurried by,* [. . .] *the frightened Mouse* [. . .] *the March Hare. . . , etc.*[1]

The nine references to Alice constitute a description in which each reference (except the personal and possessive pronouns and the synonymous 'little sister') adds a new feature to the portrait, specifies and develops one and the same topic, until another topic is introduced (*the strange creatures*). As the discourse develops, the subject matter — what the discourse is actually about — acquires new characteristics. This pattern is not specific to character delineations in literature. The subject matter described may be the atmosphere or environment in which the action takes place:

> *The sun did not shine.*
> *It was too wet to play*
> *So we sat in the house*
> *All that cold, cold, wet day.*
> *I sat there with Sally*

We sat there, we two.
And I said,
'How I wish
We had something to do!'
Too wet to go out
And too cold to play ball.
So we sat in the house.
We did nothing at all.
So all we could do
was to Sit! Sit! Sit! Sit!
And we did not like it.
Not one bit.
And then something went BUMP!
How that bump made us jump!
We looked! And then we saw him step in on the mat!
We looked! And we saw him! The Cat in the Hat![2]

The Theme (topic) of the discourse, while maintaining its identity under varying guises (pro-forms, synonyms, paraphrases, recurrent references), at the same time continues to be enriched with new features and new relations with other objects of thought in the discourse. According to Beaugrande and Dressler (1981/1986: 136), the topic of the text is constituted by the object of thought with 'the greatest density of linkage to other concepts' in the discourse. Co-reference is a means of achieving discourse cohesion. The very essence of cohesion, in the context of this discussion, is that it ensures the required redundancy in the thematic component of the discourse semantic structure.

Redundancy in the thematic component is indeed objective semantic redundancy (both lexical and componential). However, as the discourse unfolds, the continuous process of inferencing involving frames, schemata, and scripts will generate new referents, which are closely linked with the main topical ones and will thus increase redundancy in the sense of the message.

The deictic and value judgement components, when foregrounded, are also part of the thematic substructure. Deictics, by definition, do not have fixed context-free reference but refer only when used in discourse to point to a specific entity or co-ordinate in the textual world, and different instances in a discourse of the same deictic form (he, she, now…) may have different referents. In the example from *Alice* above, although the pronouns *she*, *hers,* and *her* refer to Alice's big sister and not to Alice, there is no ambiguity. Spatial deictics like pronouns and deictic articles are part of the referential

substructure, along with noun phrases and propositional phrases, and all constitute parts of the topic (or hypertopic) of the discourse.

Let us look at the opening sentences of a political statement to the UN General Assembly by the delegate of the United Republic of Tanzania.

> *The question of Namibia, which is now before the General Assembly for consideration,* [. . .] *is the question without doubt which reveals fully the deadly consequences of apartheid, racism, and colonialism, these scourges of humanity.*
>
> *Thus one can see from the impressive number of speakers on this question the particular importance that practically all members of our Organization attach to the present deliberations within the Assembly.*
>
> *My delegation, which has carefully followed the debate and carefully studied the reports of the United Nations Council for Namibia and the Special Committee of 24 regarding Namibia, feels a deep-seated concern with regard to the clear deterioration of the situation in that territory throughout the period covered by those reports.*
>
> *Indeed, we see clearly from the two documents that the apartheid regime of South Africa, flouting the resolutions adopted at the thirty-second session and other resolutions of the United Nations concerning Namibia, in particular, Security Council Resolution 385 (1976) which established the framework for an acceptable international settlement of the Namibian question, has accentuated further its system of oppression and inhuman exploitation of the Namibian people.*
>
> *Thus the racist colonialist regime of Pretoria, with its typical distorted attitude, has perpetrated frenetically brutal acts of repression against the people of Namibia, characterized by unwarranted massacres of the civilian population as well as massive arrests of the South West Africa People's Organization (SWAPO). To exercise their domination in that part of southern Africa, the apartheid regime has perpetrated multiple acts of provocation and aggression against Angola and Zambia, causing considerable numbers of casualties and material damage* [. . .]

The three *referential chains* woven into the discourse structure stand out immediately:

(1) Namibia and its people: *the question of Namibia;* [. . .] *the United Nations Council for Namibia;* [. . .] *reports* [. . .] *regarding Namibia;* [. . .] *the situation in that territory;* [. . .] *resolutions* [. . .] *concerning Namibia; settlement of the Namibian question;* [. . .] *Namibian people;* [. . .] *the people of Namibia;* [. . .] *massacres* [. . .] *of the civilian population;* [. . .] *South West Africa People's Organization*

(2) the apartheid regime in Pretoria: [. . .] *apartheid, racism, and colonialism, these scourges of humanity;* [. . .] *deterioration of the situation;* [. . .] *apartheid regime of South Africa;* [. . .] *its system of oppression and inhuman*

> *exploitation;* [...] *racist colonialist regime of Pretoria;* [...] *its* [...] *distorted attitude;* [...] *brutal acts of repression against the people;* [...] *unwarranted massacres of;* [...] *massive arrests of;* [...] *their domination in that part of* [...] *Africa;* [...] *the apartheid regime;* [...] *multiple acts of provocation and aggression*

(3) the issue as posed within the United Nations framework: *the question* [...] *before the General Assembly;* [...] *the impressive number of speakers;* [...] *all members of our Organization;* [...] *the present deliberations within the Assembly;* [...] *my delegation;* [...] *reports of the United Nations Council for Namibia;* [...] *Special Committee of 24;* [...] *the period covered by those reports;* [...] *the resolution adopted at the thirty second session;* [...] *other resolutions of the United Nations;* [...] *Security Council resolution 285 (1976);* [...] *an* [...] *international settlement* [...] *of the question*

Another component of the discourse is the *value judgement* component, with its strongly negative assessment of the then apartheid regime of South Africa and its actions:

> *the* ***deadly*** *consequences of apartheid;* [...] *apartheid, racism, and colonialism, these* ***scourges of humanity;*** [...] *the* [...] ***deterioration of*** *the situation;* [...] ***flouting*** [...] *the resolutions;* [...] *its system of* ***oppression and exploitation;*** [...] ***inhuman*** *exploitation;* [...] ***racist colonialist*** *regime;* [...] *the* ***distorted*** *attitude;* [...] *perpetrated* ***frenetically;*** [...] ***brutal*** *acts of repression;* [...] *acts of* ***repression;*** [...] ***unwarranted*** *massacres;* [...] ***massive*** *arrests;* [...] ***multiple*** *acts of aggression;* [...] *acts* ***of aggression and provocation;*** [...] ***considerable*** *number of casualties;* [...] *number* ***of casualties and material damage***

The extract also illustrates the *temporal parameters* of the semantic structure (modality is factive throughout). The time of speech is taken as the 'zero' co-ordinate to which all other events mentioned are temporally related:

1. *my delegation* [...] *has* [...] *followed the debate and* [...] *studied the reports*
2. *the deterioration of the situation* [...] *throughout the period covered by the report*
3. [...] *the apartheid regime* [...] *has accentuated* [...] *its system of oppression*
4. [...] *the apartheid regime has perpetrated* [...] *acts of provocation and aggression*

All the events mentioned occur before the moment of speaking, yet are closely linked to that moment, since the reports and the delegate's statement itself are devoted to their analysis. This is stressed several times both in the

categorial semantics of the present perfect tense and in the lexical semantics of propositional nouns reflecting states and actions: *debate, deterioration, oppression, acts, provocation, aggression.*

33. Redundancy in Spanish public speaking

Public speaking in Spanish is, in general, more redundant than discourses of a comparable style in other European languages. Let us elaborate briefly.

Several features of Spanish combine to generate extensive co-reference in public statements, including free word order, a highly-developed system of pronouns and articles, mandatory gender, number and person agreement between the noun and its adjective (which may be located at some distance from each other in the sentence) and supra-phrasal person and number agreement of verbs and adjectives with their nouns whenever the designation of an entity and its actions and properties are repeated (Kanonich 1979: 25). This is illustrated in an utterance taken from a statement by the Argentinian delegate to the United Nations:

> *Y en virtud de ello y hasta 1833, la administración de las Malvinas estuvo a cargo de* ***seis gobernadores****, a través de* ***los cuales*** *se ejerció el dominio pacífico y exclusivo del archipiélago por mi país, sin que* ***sus*** *títulos y derechos y los innumerables actos de jurisdicción y administración que* ***realizaron****, fueran discutidos ni impugnados por estado alguno.*
>
> 'And by virtue of that, and until 1833, the administration of the Malvinas was in the charge of **six Governors** through **whom** was exercised peaceful and exclusive rule over the archipelago by my country, without **their** titles and rights or the countless legal and administrative acts **they performed** being questioned or impugned by a single state'

In Spanish usage there is a tendency to drop the subject of the sentence when the addressee knows what the utterance is about. This tendency results typically in a construction with an added attributive clause of the type '*que* (which) + verb', where the antecedent for *que* (whether subject or complement) is in the main clause.

(SL) Spanish Original	(TL) English Interpretation
Debemos recordar con respeto y simpatía la figura ilustre del ***Sr. M****. y saludar en* ***él*** *al pueblo de alta cultura que* ***representaba*** (‘**which** he represents’)	*We must remember with respect and sympathy the illustrious figure of* ***Mr. M*** *and greet* ***him*** *as a* ***representative*** *of a people of high culture.*
Se han pronunciado hoy palabras llenas de elogio para ***mi*** *persona por la conducta que* ***he tenido*** (‘**which** I have had’).	*Words of high praise, addressed to* ***me****, were pronounced today, noting* ***my*** *behavior.*
Muchos oradores han exaltado a ***la CTPD***[3] *y algunos han discutido las limitaciones que* ***tiene*** (‘**which** it has’)	*Many speakers have extolled* ***TCDC***[4] *and some have discussed* ***the relevant constraints****.*

Grammatically, this construction is far from mandatory. A more compact paraphrase is possible: *y algunos han discutido* ***sus*** *limitaciones* (‘and some have discussed its limitations’) However, *sus* with a plural noun may mean ‘his’, ‘its’, ‘her’, ‘their’ and (orally) even ‘your’, and therefore could in principle refer not only to the antecedent *la CTPD*, but also to *algunos*. This ambiguity is weak but is theoretically present. The overall tendency to avoid referential ambiguity in Spanish discourse leads to higher-than-average redundancy. The freedom of word order in a Spanish utterance also leads to a wide usage of various ‘emphasising superstructures’ in Spanish public pronouncements, employing inversion, absolute negation, other emphatic devices, and *lo*-phrases which both generalise and emphasise the meaning intended (Kanonich 1979: 162). In the example below, the construction *lo que…* […Verb phrase…]*… es que* (literally ‘that which […Verb phrase…] is that…’) accentuates the foregrounding of the semantic component:

(SL) Spanish Original	(TL) English Interpretation
Lo que no podrá aceptarse jamás, a no ser que se admita el fracaso definitivo que nos conduciría al abismo de la frustración, **es que** en nombre de principios por todos sostenidos, **se consume la perpetuación** de un despojo secular, mediante un rechazo de una negociación que garantiza legítimos intereses y que no tendrá	***Something that*** *can never be acceptable, unless we admit an eventual defeat that could lead us to abysmal frustration, is* ***the perpetuation*** *– in the name of allegedly generally supported principles –* ***of century-old plundering****, due to refusal to participate in negotiations that*

vencidos, porque en ello sólo triunfarán la concordia, la justicia y la paz.	*would guarantee legitimate interests and the absence of the defeated, as agreement, justice and peace could only triumph through negotiations.*

Redundancy in public pronouncements in Spanish is comparatively higher than in English, French and Russian. Another reason for this is that Spanish public speakers, besides the stylistic tendencies described above, often resort to pleonasms, tautological repetitions of parallel structures as figures of speech, and cumulative syntactic embedding in consecutive utterances in discourse to heighten the emotional impact of a public speech. In simultaneous interpretation from Spanish into the three languages mentioned, interpreters more often than not resort to the so-called 'stylistic transposition', i.e. bringing down the stylistic level of the SL pronouncement to make it more acceptable to their audiences.

34. Types of speech compression in SI

High redundancy in discourse provides the interpreter with opportunities for compression. The subconscious transition from the SL semantic structure to the TL internal programme can be described in the formulae:

SL TH(m+n) → TL TH(n) and

SL TH(m+n) → TL TH(k) (see Chapter 6, §31)

where TH is the thematic component in the source discourse (SL) or the interpreter's output (TL), and *k, m* and *n* are elements of input or output. Speech compression consists in an economy of language to express a given content. Ellipses and elliptical constructions, to name but one means of compression, are found in all languages. As a stylistic device in simultaneous interpreting, compression is made possible by linguistic redundancy in the thematic component of discourse. The skill of compression is also a 'labour-saving device' in the extreme conditions of SI.

Speech compression may be of different types according to the linguistic material which is reduced (linguistic compression) and on the semantic elements processed by the interpreter. Compression may be *syllabic*, *lexical*, *syntactic*, *semantic* and/or *situational*.

Syllabic compression reduces the overall syllable count of the TL discourse as against the corresponding input. (The syllable count is the only *objective*

measure of this phenomenon in SI. The number of syllables in a particular passage as a function of time is also an objective measure of the rate of speech, whereas rates of speaking measured in words can only serve to compare the delivery speeds of different speakers in the same language.)[5] The skill of syllabic compression consists in the ability to find a shorter synonym for an idea wherever possible. For example, in English:

> *X is necessary* [5–6 syllables] → *X is required* [4 syllables] → *we need* X [3 syllables];

in Russian:

> *необходимо* [5 syllables] → *следует* [3 syllables] → *нужно* [2 syllables].

Obviously syllabic compression allows the interpreter to speak more slowly and comfortably than the original speaker.

The importance of compression depends on the SI language combination. Among the four languages considered in this work, compression is most telling for English or French into Russian or Spanish. However, observation and analysis of live SI show that the amount and frequency of compression depend above all on the interpreter's professional skill, and that this device is used as often by professionals working from Russian or Spanish into English as in other language combinations. One explanations for this is that, all else being equal, a slower rate of speech enhances audience perception.

Evidence from SI corpora in support of this observation is presented in Appendix A in a transcript of an extract from the 1978 UN conference on technical co-operation between developing countries (TCDC) in Buenos Aires, which as an experiment in remote interpreting was simultaneously interpreted into three languages by two teams of interpreters, one at the conference site and the other, via satellite, at the UN Headquarters in New York. Two versions of interpretation into each language – French, English and Russian – are shown in parallel alongside the original Spanish.

The results of the syllable count for all six transcripts are summarised in Table 5 below. It clearly shows that regardless of target language, the SI renderings almost always contain fewer syllables than the SL original.

Table 5. Compression in SI (1978 Buenos Aires UN corpus: see Appendix A, extract 2)

	Spanish original	Syllable count					
		SI renderings					
		English		French		Russian	
		I	II	I	II	I	II
1	83	61	70	73	74	83	79
2	102	74	73	74	79	114	88
3	60	46	47	63	62	62	56
4	56	38	34	34	40	53	50
5	12	11	11	10	15	13	13
6	14	7	9	8	11	10	16
7	11	9	8	9	8	11	10
8	46	28	27	31	37	37	42
9	162	128	123	86	130	144	166
10	94	71	77	77	82	80	74
11	84	66	66	72	79	82	82
Tot	724	539	545	537	617	689	676

Lexical compression is the use of fewer words to express the same idea:

Thus one can see from the impressive number of speakers [. . .] the particular importance [13 words; 9 without prepositions and articles]	Внушительное число ораторов [. . .] подчёркивает особую важность [6 words] '*impressive number* [*of*] *speakers* [. . .] *emphasises* [*the*] *particular importance*'
Nos alegramos de ver otra vez [. . .] restablecido entre nosotros. . . [9 words] '*We are delighted to see once again re-established among us. . .* '	Мы рады вновь [. . .] видеть среди нас [6 words] '*we* [*are*] *happy again* [. . .] [*to*]*see among us*'
Señalamos entonces el orgullo que como españoles sentíamos. . . [8 words] '*So we indicate the pride which we feel as Spaniards. . .* '	Мы, испанцы, гордимся тем, что. . . [5 words] '*We, Spaniards*, [*are*] *proud* [*of*] *this, that. . .* '

Syntactic compression results from the choice of a shorter and simpler construction than that used in the original, for instance by:

– breaking a complex sentence with involved clause structure into several simple sentences (see the example below, and examples in Chapter X, §45).

– using a participial or prepositional phrase instead of a clause, as in these examples:

the question of Namibia *which is before* the General Assembly *for consideration* is […] *the question* […] *which reveals* fully […] the consequences of apartheid	вопрос о Намибии, ***рассматриваемый*** Генассамблеей, […] полностью *вскрывает* […] последствия апартеида '*question of Namibia, considered* [*by the*] *GenAssembly,* […] *fully reveals* […] [*the*] *consequences* [*of*] *apartheid*'
mais on ne peut pas en conclure *qu'il ait renoncé à* cette perspective '*but one cannot conclude from that that he has abandoned this prospect*'	that does not signify *his rejection* of that perspective

– substituting a prepositional phrase for a participial construction:

to give greater practical reality to the principles *contained in the Charter*	полнее воплощать в жизнь ***принципы Устава*** '*fully embody in life* [*the*] *principles* [*of the*] *Charter*'
le debat *portant sur* la question '*the debate bearing on the question*'	the debate ***bearing on*** the question
его труды, *касающиеся* наиболее актуальных проблем '*his works, concerning* [*the*] *most topical problems*'	his works ***concerning*** [the] most topical problems

– substituting a single word for a word combination, or an abbreviation for the full name of a country or an organisation, as in (Fr.) ONU, (Rus.) ООН for 'the United Nations', or plain Танзания for 'The United Republic of Tanzania'.

Semantic compression reduces the number of iterative semantic components and their configurations in the utterance and in the entire discourse. It usually takes the form of semantic paraphrase:

> higher living standards depend on greater output > *pour mieux vivre il faut produire davantage*

but may also involve the elimination of differential semantic components in moving from specific to generic designations, e.g. by the use of hypernyms:

les essais d'armes nucléaires dans l'atmosphère, dans l'espace cosmique et sous l'eau > *nuclear tests in the three media*
traité de non-prolifération des armes nucléaires > *non-proliferation treaty*

An extreme case of semantic compression may be seen in the use of deictic pronouns in place of common nouns:

Après avoir attentivement suivi le déroulement de ces premières séances de la conférence sur les problèmes des pays producteurs de matières premières…	After closely following the course of the first sessions of this conference…

The following expressions are also normally equivalent:[6]

the fact that […] → *this fact*
the idea that […] → *this idea*
the assumption that […] → *this assumption*
the situation where […] → *this situation*, etc.

Other types of compression may result in semantic compression, although this is not the case with the simple *syntactic contraction* of a word combination into a single word, e.g.

éprouver des doutes	→ *to doubt*
осуществлять руководство экономикой	→ *to manage the economy*
prêter appui à qqn	→ *support somebody*
movimientos emocionales	→ *emotions*
славная дата	→ *anniversary*

in which there is no semantic compression, since both semantic components contained in the word combination are also present in the single word:

$a + b \rightarrow a\ b$

These four types of compression are closely interrelated. As seen in the examples, syntactic compression or simplification results in lexical compression (fewer words used) and hence syllabic compression. The syllable count thus emerges as the litmus test of compression.

The transcript in Appendix B at the end of the book (from the UN General Assembly corpus) shows compression in a SI rendition of the statement by Tanzania which was cited at the beginning of this chapter to illustrate redundancy. Syllable counts for each SL and TL phrase and utterance, and the

totals for the whole passage, reflect the interpreter's systematic choice of shorter words and phrases:

- *Генассамблея* ('*Genassembly*'): an abbreviation for *Генеральная Ассамблея* (*General Assembly*) in (1.3) and (2.10), that is, 5 syllables instead of 9;
- *Несомненно* ('*undoubtedly*') instead of *без* (*всякого*) *сомнения* ('*without* (*any*) *doubt*) in (1.6): 4 syllables instead of 5 or 8;
- *ООН* ('*UNO*') instead of *нашей организации* ('*our organization*') or *Организации Объединённых Наций* ('*United Nations Organisation*') in (2.7), (3.7), (4.11): only 2 syllables instead of 8 and 13, respectively;
- *почти* ('*almost*') instead of *практически* ('*practically*') in (2.6): 2 instead of 4 syllables;
- *глубоко встревожена* ('*deeply concerned*') instead of the frequent political cliché *испытывает глубокую озабоченность* ('*feel deep concern*') in (3.10) and (3.11): 7 instead of 14 syllables; etc.

These usages, added to lexical and syntactic compression, achieve a reduction in the total syllable count for the analysed passage from 567 to 506 syllables, or a reduction of 61 syllables (Table 5). This tendency contrasts with the expansion, or increased syllable count (up to a ratio of 1:2) which is typical of *written* translation in general, and in particular for translation from the analytical English language into the synthetic Russian language. Syntactic compression can be observed in utterances (1), (2), (3), (4) and (5) of the extract; for example, in (1), through the use of the present tense participial phrase instead of the attributive clause.

A particularly notable phenomenon is the reduction of the so-called regressive depth of the sentence[7] (Ingve 1965; Lushchikhina 1968; Chernov 1978: 173–177). Let us examine a segment of the fourth (SL) utterance in the above passage with the following hierarchical structure (the rank of dependency of each phrase is shown on the left, for the original and for the Russian rendition):

I We see clearly [. . .]
II that the apartheid regime [. . .]
III flouting the resolutions [. . .]
IV which established the framework [. . .]
II has accentuated further its system of oppression [. . .]

I Мы ясно видим [. . .]

II что режим апартеида попирает резолюции [. . .] (*that the regime . . . flouts. . .*).

III которые создали условия [. . .]

I Он ещё больше ужесточил систему [. . .] (*It has accentuated. . .*)

In processing this SL structure, working memory has to cope with the entire segment of the utterance from phrases (4.6) to (4.20), a span of 14 phrases. In order to render *has accentuated. . .* (the return to rank II), the interpreter has to keep somewhere in her mind the sentence subject *the apartheid regime*. The way the equivalent is constructed allows her to free her working memory of any unfulfilled syntactic commitments.

Lexical compression reduces the number of common nouns and verbs from 174 in the input version to 132 in the interpretation.

Semantic compression is seen chiefly in the reduction of referring expressions and anaphora, as in the following rendition:

> [. . .] which is now before the General Assembly for consideration [. . .] (1.2, 1.3, 1.4)
> [. . .] *рассматриваемый Генассамблеей* [. . .] ('*considered* [*by*] *Genassembly*')

'*Now*' reiterates a temporal index on the act of speaking already expressed in the copula *is*. In TL, this semantic component is represented only once, in the present participle. The redundant *for consideration* is also omitted in TL: '*to be before*' has the dictionary[8] definition: [a case, matter] *to be presented for a decision* to [a board, committee, etc.].

Note also the omission in utterance (2) of a pragmatic component, the explicit modus *one can see,* which is implicit in any narrative utterance; and the omissions of subjective modality (*indeed*) in (4) and of the pseudo-logical connective *thus* in (5).

It is important to note that all cases of compression in this SI passage concern only the thematic component of the message semantic structure, which is to be expected, since redundancy characterises only the Theme of discourse. The rendition of the president's initial announcement is of particular interest in this connection: *I now give the floor to the distinguished delegate of the United Republic of Tanzania* is rendered in TL by just one word: *Танзания*! All the types of compression described above are here combined: the syllable count goes down from 26 to 4 and the word count from nine to one; syntactically the sentence is reduced to a nomination; and semantically, the topic is omitted

altogether, with only the rheme (*Tanzania!*) being rendered. In communicative terms, this can be identified as a case of 'situational' compression, as distinct from the examples of pure structural and semantic compression previously described. Shiryaev describes situational compression as 'elimination of speech chunks bearing information which is compensated for by the extralinguistic situation of communication' (1979: 89).

Situational compression can be used only in a limited way, and is not acceptable in official contexts. At the United Nations, for instance, the situationally compressed SI at sessions for which verbatim records are prepared must be restored to a full version by the drafters of these records; structural and semantic compression, in contrast, are acceptable in principle not only for the official records but also for (written) translations.

As noted by some authors (Shiryaev 1979), the degree of compression at least partly depends on the speech rate of the source speaker, since as we have seen, the simultaneous interpreter tends to maintain her own independent rate of delivery.

Compression makes the message informationally denser. Hence the second limitation on the applicability of compression in SI: in *relay interpretation*, with one of the languages serving as 'pivot', information density in that second-stage SI language should not be intentionally increased by the first interpreter, as it increases automatically in any case. The only useful device remaining in relay interpretation is therefore syntactic simplification. Compression cannot apply to numbers. In contrast to the way speech sounds are perceived and undergo multistage processing with the emphasis on meaning and sense, the processing of figures goes as far as the perception of the order of magnitude for an expert in the subject matter of the conference, while for the interpreter it stops at the perception of the specific figure, i.e. at the stage of audio processing of the sound signal. Numbers lack redundancy and cannot be compressed (with a possible exception for the full designation of the year, e.g. *in nineteen ninety five* → *in ninety five*) since they cannot be held in the interpreter's memory longer than for the duration of the immediate, or iconic, memory. If lost, a number cannot be restored by the interpreter 'from the overall sense', as is possible with other types of information. However, with these limitations, compression is a widely used 'labour-saving device' for simultaneous interpreters.

Chapter 8

Rheme and information density

35. Perception by information density peaks

There is every reason to believe that a special neurophysiological mechanism in the human brain allows us to perceive information from the environment by its critical points, i.e. by *the measure of information change*. Shapes, for example, are perceived by maximal curvature sections of the contour, i.e. by sections bearing the maximum amount of information (a continuous straight line does not bear any new information). Human vision is also primarily oriented to the perception of motion, while the eye of a frog does not perceive motionless objects at all. The human eye ensures proper perception of motionless objects through the scanning movements of the pupils (Held & Richards 1974; Lindsay & Norman 1972/1974; Velichkovsky 1982). The perceptual priority given to information *change* in the environment acquired by certain organisms undoubtedly conferred a major evolutionary advantage to those life forms, since a change in the environment could either present a danger to an organism's (and a species') existence, or be a source of food to sustain its life.

In linguistics, a fact has been established, in the only area of this discipline where exact laboratory measurements are possible, i.e. phonetics, which seems to illustrate this principle particularly well. It turns out that phonemes are perceived not so much at their steady-state segments as at the transition from one phoneme to the next (Chistovich 1965; Massaro 1975).

A similar principle at the level of message comprehension is recognised in Relevance Theory (Sperber & Wilson 1986/1995), which characterises human communication as 'ostensive-inferential'. An 'ostensive stimulus' carries the guarantee of its own relevance (when new information in combination with old information already existing in the perceiver's long-term memory results in the derivation of further new information) to a hearer able and willing to process it inferentially. According to the Second Principle of Relevance: '(a) The ostensive stimulus is relevant enough for it to be worth the addressee's effort to process it; (b) The ostensive stimulus is the most relevant one compat-

ible with the communicator's abilities and preferences' (1986/1995: 270). We assume that the retrieval of the sense of the discourse has the same basis. In normal conditions of human speech perception, attention must be directed to such semantic components of the message content which would signify its development, a possibility to derive *new*, or *relevant* information. If that is so (and we have absolutely no evidence to the contrary), the simultaneous interpreter should pay particular attention to that part of the content which may give her a chance to derive new information (by inferring), and that means, considering all that has been said above, that attention should be directed at the foregrounding rheme of the utterance. This is essentially what Zhinkin observed when he wrote that 'the measure of information change in two combining words constitutes a minimal unit of sense' (Zhinkin 1970: 77) (see Chapter 4: §14).

Once the topic of the discourse has been explicitly stated or transparently implied, and the referential network is established, the hearer seeks to comprehend the sense of the discourse.[1] She looks for information about *actions* and *evaluations of their certainty/uncertainty*; about various features and characteristics of the referents and evaluations of them; and, finally, about the *speaker's intentions*. These are basically the parameters which determine what inferences are made, and they are retrieved from the rhematic components of the utterances of the discourse.

Felicitous perception and comprehension of these parameters allow the hearer to comprehend the message. They serve as reference points in the mental actions performed by the simultaneous interpreter.

Note that several researchers have pointed to a special role played in SI perception by the verb or the predicate of the sentence. Goldman-Eisler (1972), discussing the perceptual segmentation of the SL speech by the interpreter, claimed that the interpreters process input in units which should usually include one verb/predicate group. That conclusion tallies quite well with the so-called 'ideal moment to begin interpreting' theoretically established by Kade and Cartellieri (1971). It is only partly true, however. It would be erroneous to associate the sense-producing rheme (the foregrounder) with the verb-predicate alone. The 'appropriation' of the sense of the utterance by the interpreter is a more complicated process than the perception of the verb-predicate. We must not forget about the cumulative nature of sense retrieval from the discourse as a whole, which continues from utterance to utterance. The objective of the simultaneous interpreter is not to render the sense of the individual utterance, but to carry over the semantic structure of the whole discourse from SL to TL. In other words, the interpreter renders not the sense

of each utterance alone, but the sense of the utterance plus the sense of the entire part of the discourse which has already taken place, indeed of the entire previous discussion, as it has accumulated up to that point on the basis of the entire previous verbal, cognitive, situational and pragmatic context.

At the beginning of a new utterance, and particularly when a new topic or subtopic is introduced, even an experienced simultaneous interpreter may resort to word-for-word rendition, during which – as close observation of SI performance suggests – her attention is always directed to searching for a sense-producing semantic component, allowing her to make an inference and comprehend the sense, or the objective of that particular utterance in the discourse semantic structure. If the discourse deals with additional characterisations of the thematic component, the interpreter seeks to find them out; if it is about an action, the interpreter wants to have it spelled out; if it refers to an assessment, the assessment must become transparent. The interpreter's objective at any given moment of performance is to establish the communicative intention of the speaker in each particular segment of the discourse.

36. Loss of information due to a missed rheme

The rheme may be characterised, after Zhinkin (see Chapter 4, §15), as a measure of information change in the ongoing and unfolding discourse. It may coincide with the predicate of the sentence, or it may be 'hidden', in which case there will be a sense gap to bridge (see Chapter 6, §30). In the latter case the interpreter is in danger of losing part of the content of the message (see experimental results in §30).

To better understand the role of the rhematic component let us consider an example of sense errors in SI due to a lost rheme. In the transcript of SI at the UN General Assembly in Appendix B (extract 2), the interpretation of the passage from utterance 11.1 onwards shows clearly how missing a rheme may affect more than one utterance. In this case it meant loss of the sense of an entire passage. The passage is a statement of the so-called 'petitioner', a complaint against the administering authority on behalf of the then non-self-governing territory of Puerto Rico.

The interpreter misses the rheme in (11.1) *We are the America...*, resuming the previous theme ...*мы – пуэрториканцы* ('*we* [*are*] *Puerto Rican*'). This results in the distortion not only of the sense of utterance (11.1), but also of a whole chain of subsequent utterances, until (11.17), where the interpreter

seems to pick up the logic of the discourse. A missed rheme leads to the loss of a substantial part of the message.

37. Strong rheme, weak rheme, chain of referents

Semantically, all utterances may be classified by predicate type: these include the predicate of 'qualitative characterisation' (characterising the subject), the relational predicate (establishing a relation between the subject and the object), the classifying predicate and, finally, the identifying predicate. One additional type, the existential predicate, stands apart from the others. Some authors do not count existential utterances among those that contain predicates. A good description of existential utterances is given by Arutyunova (1988):

> If in the predicate sentence the substance (presupposition of existence) to which such and such characteristics are then ascribed (predicated), e.g. *This horse is bay*, is taken as a given, then in the existential utterance (assertion of existence) a certain complex of characteristics is taken as previously assumed, while the proposition concerns realisation of those characteristics in a substance (*Ponies exist, while a humped horse does not*); it is then implied that the name in question may (or may not) be used referentially in the subsequent text (Arutyunova 1976: 205; also 1998: 737)

> The classical existential sentence consists of three main components: one serves to define the area of existence, another indicates an object or a class of objects existing in that area, the third points to the fact of existence, being or availability (Arutyunova 1976: 212)

When the existential predicate formally coincides with the rheme of the utterance we obtain what may be called a '*weak rheme*', or an existential foregrounder, whose function includes an indication of the referential nature of the object of the utterance (what the utterance is about), i.e. of the fact of existence of that object in the discourse semantic structure, or in the fragment of the world which the discourse deals with.

In many cases the weak rheme, or the existential foregrounder, performs only one, purely categorial, function of the predicate, that of referring the utterance to the world. However, the predicate cannot remain neutral as to the mode of this referral, and so it bears information not just of existence, but also of factivity, modality and the communicative attitude of the speaker. The weak rheme, being a predicate, of necessity performs a speech act (in Searle's definition). And since that is so, the weak rheme, just like the strong one, also

serves to introduce the deictic world of the discourse and its spatio-temporal co-ordinates into the semantic structure of the discourse.

However, weak rhemes in utterances make the semantic structure of the discourse 'defective', especially when the discourse assumes the nature of a 'referential chain' (used, for example, in annotating books). In principle, it is possible to build a purely nominative structure as a chain of nominations without establishing links between them other than supplying a certain linear order. Thus we obtain a linear, that is partly structured, order of referents, which, although extremely elliptical and thus inadequate to express fully the sense of the discourse, yet supplies an idea of its semantic content. An annotation is known to produce an approximate idea of the contents of a text, at least sufficient for the reader to decide whether she wants to learn more about it. Something very roughly similar may happen in SI when performed by a novice or a very inexperienced interpreter.

Let us take another real (UN) conference example. Here a speaker expressing his condolences to the delegate of India refers to:

> [. . .] *the devastating cyclone and tidal wave which* ***have just battered*** *the south-east coast of India. . .*

The Russian interpreter renders this phrase as:

> [. . .] *в связи с разрушительным циклоном и цунами,* ***имевшими место*** *на южном побережье Индии*
> 'in connection with [the] devastating cyclone and tidal wave occurring on [the] southern coast [of] India'

thus substituting a weak (existential) rheme *иметь место* ('*occurred on*') for the strong rheme *have just battered*.

Certainly, by virtue of pointing to the fact of existence and referring this fact to the past, this predicate does more than just name one of a string of referents. Compare the following:

a. Strong rheme	b. Weak rheme	c. Element of a referential chain
. . . cyclone and tidal wave. . .	. . . cyclone and tidal wave. . .	cyclone and tidal wave
. . . have just battered the. . .	. . . occurred. . . on	
. . . coast of India	. . . the coast of India	coast of India

When a weak rheme is substituted for a strong one, at least three out of five possible categorial semantic components are still expressed in TL. Certainly the utterance has been rendered in TL, an act of communication has been

Comparative analysis of categorial semantic components

	predication	existence	action	temporal indication	link to the moment of speaking
a	+	+	+	+	+
b	+	+	–	+	–
c	–	–	–	–	–

accomplished, and even its basic objective – to express the speaker's sympathy with India – is achieved, but the interpretation is considerably poorer than the original. A sense gap has appeared.

The substitution of a weak rheme for a strong one in interpretation is probably rare in experienced professionals, but occurs frequently with students or SI novices. It is also characteristic of 'minimal translation'. On the other hand, 'minimal translation' is often resorted to by the simultaneous interpreter as a 'filler' or 'placeholder' while waiting for the real predicate to appear, notably in cases of differences in syntactic structure between SL and TL. Such cases are cited, for example, in Setton (1999: 140–142, 271).

In contrast, merely producing a chain of referents in lieu of properly predicated utterances is usually considered tantamount to translation failure. Yet, in certain very rare cases, a chain of referents in a passage of discourse may provide a kind of a summary of a discourse (or a part thereof) and thus serve as a valid enough substitute for an actual translation for a specific hearer (for instance, for an expert in case of a highly technical discourse). The criterion of success lies in whether a given chain of referents may partly substitute for the lost passage of the discourse.

If we return to the example from *Alice in Wonderland* quoted in the last chapter (§32) and delete all predicates from the passage, we get the following list of nominal phrases:

> *little Alice herself . . . the tiny hands. . . her knee . . . the bright eager eyes. . . the very tones of her voice . . . that queer little toss of her head. . . the wandering hair. . . her eyes . . .*

It is clear that they refer to Alice as the object of discourse and by ascribing new characteristics to her, they represent a summary of Alice's portrait.

38. The dominant evaluative rheme in a political discourse

Although the rheme, in contrast to the theme, exists only as a foregrounder, i.e. only at the level of a single utterance in an oral discourse, we can identify the type of rheme characteristic of a certain discourse genre, or the *dominant rheme* for a particular type of discourse. In the case of a political statement at an international gathering we may expect the typical or dominant rheme to be the *rheme of value judgment.*

Experience of simultaneous interpretation shows convincingly that most delegates do not seek to *inform* the audience about something for the sake of information, but to *convince* the audience of the need to *take a certain action*, and hence the speaker presents the facts of his own choice in support of certain arguments.[2] In so doing he makes the appropriate choice of facts, on the one hand, and presents them with his own judgment of their values.

An extract from the Buenos Aires remote interpretation experiment (see Appendix A; see also Chapter 5, §26) may serve as a good example. The summary gist of the passage is as follows (the abbreviation TCDC stands for 'technical co-operation among the developing countries'): TCDC makes a good contribution to the development of the developing countries. But there are obstacles to its growth. Many claim that the major one is the problem of funding TCDC. However, the speaker believes that the main obstacle to the development of TCDC lies in a psychological barrier, i.e. the underestimation of the value of this co-operation by the developing countries themselves. This can only be overcome by the developing countries themselves, and that is the most difficult problem.

Let us consider the parallel simultaneous renditions of the English speech into French, Spanish and Russian (Appendix A).

Russian interpreter #1 (RI-1)'s rendition is an interesting case. First, this interpreter misses the rheme of the second part of utterance (1), *relevant constraints*, i.e. constraints to the development of TCDC (which Russian interpreter #2 (RI-2) renders as 'obstacles existing'). This loss, in turn, leads to her misunderstanding the rhematic component of utterance (4), *attitudinal barriers* (which RI-2 renders as 'barriers of attitudes') and which the speaker believes to be the main obstacle to the development of technical co-operation among the developing countries themselves. Then RI-1 completely omits utterance (5), the translation of which, even if it was internally ready, would have been a violation of the logic of the discourse she (RI-1) is producing.

RI-1 then loses the co-references of *attitudinal barriers*, i.e. *the phrase* (5), *it means* (6), *it refers* (7), *psychological barriers* (8). Only in utterance (9) does she

seem for the first time to comprehend the phrase *attitudinal barriers,* which for RI-2 has long since become a part of the thematic structure. RI-1 is at this stage only seeking an equivalent, hence the rather vague correspondence '*and other barriers connected with the country's position…*'. The difficulty of comprehension for RI-I results in a failure to grasp the rhematic component of (9) proper, and from the only elements apparently perceived – *TCDC* and *financial barriers* – she builds a rather vague end of the utterance: '*…both related to TCDC and related to financial barriers…*', indicating her lack of comprehension and an attempt to make up for it. All this time interpreter RI-2, whose only sin was an error of style in (1) and some hesitation in rendering (3), strictly follows the logic of the SL passage.

RI-1's errors are a consequence of her missing the basic sense-producing rhematic component. RI-1 has apparently perceived the positive evaluation of TCDC by the speaker, but does not understand that the speaker was focussing on obstacles to TCDC. Hence her failure to understand several subsequent rhemes which express a value judgment on the topic of 'existing obstacles' introduced through the rheme of utterance (1).

So, for RI-1, the *positive evaluation* of TCDC remains actual, hence her error in rendering the sense of the whole passage, which may be summarised as the refusal of a developed country to render technical aid to the TCDC process.

The French and Spanish versions are on the whole as satisfactory as RI-2's rendition, except that all the interpreters have difficulty in perceiving and comprehending the characterising rheme in utterance (4), *attitudinal barriers*. French interpreter #1 (FI-1) renders the gist of the utterance correctly, but the effort costs her the next utterance, where she distorts the sense, making it irrelevant to the whole discourse. Similarly, FI-2 simply misses utterance (5). Utterance (9) is also rendered vaguely by FI-1.

Both Spanish interpreters (SI-1 and SI-2) make errors in utterance (4): SI-1 says *actitud contra las barreras* ('attitude against barriers') while SI-2 talks about *actitud sin barreras* ('attitude without barriers'), and also misses utterance (5), where she says ***se encuentra*** *esta frase* ('this phrase is found' instead of 'this phrase is defined'). However, by the end of utterance (6), both Spanish interpreters seem to have perceived the general sense of the passage (see summary above).When the dominant rhematic component is evaluative, special significance is assumed by the '*hidden rheme*' (see §30 above), i.e. a rheme first introduced into the utterance as a complementiser or an attribute of the thematic component. For example, in the utterance

> *In this regard, I would particularly like to pay tribute to my distinguished colleague, Ambassador X., whose* ***thoughtful and constructive approach*** *has been helpful to us all.*

the attributes of the thematic component ***thoughtful*** and ***constructive*** constitute a hidden rheme, as we can see if we unpack the utterance in the spirit of the CDA (see §30):

> *The approach of Ambassador X, was thoughtful and constructive. This has been helpful to us all.*

The problem of comprehension of a concealed rheme and its rendering in SI is of great importance. It usually requires operations at all levels of the CDA model.

39. Rendering the evaluative component in SI

Evaluative components can play one of two roles in the utterance and discourse: that of a component accompanying the thematic referent and underlying its 'semantic history', or as the actual rheme of the utterance, in other words, appearing as overtly meaningful and sense-producing. Which guise the evaluative component adopts will determine its fate in the act of SI.

In the first case, the foregrounded evaluative component is a part of the redundant theme, and as such can be left out in the interpretation without detriment to the sense of the utterance. This can be illustrated with some examples from the Buenos Aires corpus:

> *The immense advances in science and technology present us today with an opportunity to embark on a rapid development of our human and material resources…*
>
> *RI-1* ***Огромные*** *достижения в области науки и техники дают нам сегодня возможность приступить к быстрому развитию наших человеческих и материальных ресурсов…* (1)
> '[the] immense advances in [the]field [of] science and techonology give us today [an] opportunity [to] embark on rapid development [of] our human and material resources'
>
> *RI-2 Достижения человека в науке и технике дают нам сегодня хорошую возможность добиваться быстрого развития наших материальных и людских ресурсов…* (2)
> '[the] advances [of] man in science and technology give us today [a] good

opportunity [to] achieve [a] rapid development [of] our material and human resources'

The absence of an equivalent for the word ***immense*** in the second version does not in any way affect the sense of the utterance, since the positive value of the concept is sufficiently explicit in the noun *достижения* (***advances***).

However, where the evaluative component constitutes the rheme of the utterance, it cannot be left out without distorting the sense of the utterance and of the discourse as a whole:

We... have always attached ***considerable importance*** *to TCDC.*

RI-1 Мы . . . всегда уделяли ***значительное внимание*** *TCPC*
'we... always paid considerable attention [to] TCDC'

RI-2 Мы всегда придавали ***большое значение*** *концепции TCPC.*
'we always attached great importance [to] [the] concept [of] TCDC'

The evaluation here constitutes the rheme (in fact, the whole sense) of the utterance and is dutifully rendered in both cases.

But let us become more specific. In principle, value judgments may be expressed in any sense group within the utterance: in a political speech, besides the verb-phrase, a noun phrase with a qualitative attribute is a typical representation of the evaluative semantic component. We will take such phrases as examples in considering the problem of rendering the evaluative component in SI.

There exist two kinds of evaluative semantic groups by semantic composition.

1. A phrase where the evaluative component is fully and exclusively contained in the attribute, while the noun is either devoid of the evaluative component altogether or contains a very weak and vague evaluative component. Schematically:

   (1) A + N → AN

   (2) B + N → BN where

   A = Adjective with positive evaluation (EV+)
   B = Adjective with negative evaluation (EV–)
   N = Neutral noun (EV = 0)

Here are some examples from contributions to debates at the UN General Assembly and Security Council (English SL):

(1) [positive adjective, neutral noun] *meaningful concept, excellent* (*just and fair*) *manner, reliable* (*credible, dependable*) *means, priority measures, heartening note, equitable* (*fair and just*) *order, successful outcome, hopeful* (*encouraging*) *prospect, sterling personal qualities, meaningful* (*reasonable, equitable*) *share, friendly* (*constructive, equitable*) *relationship, affluent* (*happy*) *society, concerted strategy, peaceful* (*orderly*) *withdrawal;*

(2) [negative adjective, neutral noun], *difficult assignment, pernicious combination* (*of colonial domination and racial discrimination*), *disastrous* (*terrible*) *consequences, adverse effect, disquieting feature, improper influence, conflicting interests, inequitable position* (*of privilege*) *dehumanising* (*illegal*) *practice, misguided priorities, intractable question, bleak* (*cheerless*) *record, tragic results, explosive* (*dangerous, dismal, fluid*) *situation, retrograde step, adverse trend*.

2. A noun phrase in which the evaluative component is found in the noun, while the attribute is only an *intensifier*, equivalent to '*very*' or '*very much*', which can be abstracted as the 'lexical parameter' *Magn* (see Apresyan 1974; Mel'chuk 1974):

(3) Magn + N (EV+) → Magn(EV+)

(4) Magn + N(EV–) → Magn(EV–)

Examples:

(3) [intensified positive evaluation]: *genuine acceptance, early agreement, positive assurance, early attainment, deep-seated commitment, meaningful co-operation, tireless* (*untiring, indefatigable, persistent, unflagging*) *efforts, healthy growth, clear guidelines, significant initiative, durable* (*assured, stable, lasting, guaranteed, permanent, genuine*) *peace, early* (*negotiated, just, lasting, internationally acceptable*) *settlement, outstanding skill, speedy* (*just, lasting, effective, viable, early, concrete*) *solution, optimal utilisation;*

(4) [intensified negative evaluation]: *significant deterioration, notorious dodge, fruitless expenditure, intractable* (*pernicious, dangerous*) *problem, deep regret, menacing shadow, extremely shortsighted, tremendous waste*.

In cases (1) and (2), when evaluation (EV) is introduced into the phrase with the attribute, and where the lack of any attribute would make the value judgment indeterminate, it might be possible to drop the EV component in

the interpretation without loss of meaning communicated, depending on the contextual or situational redundancy of the whole phrase. For instance:

> *Our **fruitful and encouraging** deliberations open up new prospects…*
> *Наша* (--) *работа открывает новые перспективы…*
> 'our (--) work opens up new prospects…'

Conversely, in cases (3) and (4), provided that the EV-component is carried in the noun, the EV attribute (the intensifier *Magn*), may be dropped without detriment to the overall sense, particularly if compression is required. The EV component in this case is not entirely lost, since it is connoted by the noun, as in the example above '*The **immense advances** in science and technology…*'. On the other hand, the *addition* of a redundant evaluative component to the noun phrase does not change the overall meaning of the utterance either, for instance, in the same example above, the addition *хорошую возможность* ('*a **good** opportunity*') by interpreter 2.

In cases when the rendering of the EV component becomes significant, i.e. either when it contains a 'hidden rheme' (see above, §30) or when the rheme is contained in the derivational history of the phrase, certain specific problems appear that require specific solutions (and have to be addressed in the training of simultaneous interpreters).

The point is that the EV and *Magn* components of evaluation may be classified according to varying scales.[3] In international political forums (of the UN and similar type) the most common scales of evaluation encountered are intensity, size and quantity, degree of coverage, and degree of significance, as expressed by evaluative adjectives in the following frequent combinations with appropriate nouns:

> **Size and quantity:** *adequate* (purchasing power, flow of financial resources, compensation); *meaningful, significant* (transfer of technology); *sizable* (military force, proportion of world population); *great* (progress, share of world shipping); *huge* (sum of money, expenditures); *tremendous* (costs); *immense, vast, enormous* (opportunities, contradictions, disparities, amounts, gap).
>
> **Degree of coverage:** *full* (partnership, range of sanctions); *comprehensive* (disarmament plan, peace agreement, series of commodity agreements, action programme); *global* (consensus, concern, approach, development strategies); *universal* (peace, forum).
>
> **Degree of significance:** *significant* (development, improvement, deterioration, stride forward); *important* (issue, event, etc.); *vital* (part, role,

programme); *main* (purpose); *central* (issue, question, problem); *major* (issue, problem, breakthrough); *principal* (purpose); *foremost* (task); *primary* (responsibility); *key* (issue, problem); *critical* (stage); *far-reaching* (implications, decisions); *crucial* (actions, stage, decisions); *cardinal* (principles).

Whereas in written translation, finding a correspondence appears as a problem of choice of a synonym to reflect not only the semantics of the SL attribute, but also the combinatorial properties of its TL equivalent, in SI the problem of rendering such adjectives is reduced to correctly identifying *the scale of evaluation* and expressing the approximate degree of intensity on the chosen scale. This means that a much wider range of synonyms is admissible in SI, and the choice is determined not only by purely linguistic factors, but also by such psycholinguistic factors as: the richness of the interpreter's lexicon; how fast it can be retrieved; the input speed, which determines the interpreter's rate of speech; and, finally, by the depth of the internal programme for the utterance in the interpreter's mind, which should ideally encompass the whole utterance, lest the evaluative attribute end up being rendered without due attention to the choice of an accompanying noun in output.

For example, the phrase *glaring imbalances* (inequality, inefficiency) permits the use of the following synonyms:

In French:
déséquilibre *flagrant, énorme, immense, qui crève les yeux, exceptionnel, extraordinaire, sensationnel, insupportable, important, profond, remarquable, significatif, sensible, évident, appréciable, considérable;*
inefficacité *flagrante, insupportable, qui crève les yeux, irritante, profonde, extraordinaire, exceptionnelle, grande, sensationnelle, significative;*
inégalité *flagrante, énorme, immense, extraordinaire, exceptionnelle, sensationnelle, qui crève les yeux, profonde, insupportable, considérable, importante, significative, sensible, appréciable;*

In Russian:
диспропорции: *явные, вопиющие, бросающиеся в глаза, глубокие*, etc.
неравноправие: *явное, заведомое, вопиющее, бросающееся в глаза, полное, абсолютное, чудовищное*, etc.
неэффективность: *явная, вопиющая, заведомая, бросающаяся в глаза, полная, абсолютная, чудовищная*, etc.

And, finally, the last important factor in rendering the evaluative component is the specific role played in TL by contextual semantic constraints, already mentioned above in Chapter 3, §13. This requires that all words expressing value judgement in a complementary clause harmonise with the value judgement of the main clause verb of attitude/evaluation. If this regularity is a powerful guide to predicting sense at the horizon of the utterance (or even further), then as a redundancy factor it permits considerable compression in the complementary clause by reducing the number of evaluative components to be reproduced. This effect will be significant in rendering certain standard types of utterances or phrases frequently occurring in political speeches, of the kind:

(EV+): *I am* (*we are, our delegation is, etc.*)
deeply impressed…
pleased (*happy*) *to note…*
gratified to see…
It is deeply gratifying that…

(EV–): *We regret that…*
It is a pity that…
It is a matter of great concern (*to us*) *that…* etc.

This examination of evaluative components in political pronouncements and their rendition leads us to conclude that here lie wide possibilities of compression, and that even when rendition of an evaluative element is obligatory, it is sufficient to make a correct choice of the scale of evaluation and an approximate rank of the synonym on the scale chosen.

Chapter 9

Syntax and communicative word order

40. The internal programme for the TL utterance: Whole or broken?

The problem of syntactic restructuring in the transition from SL to TL is usually discussed in detail in translation manuals with reference to a concrete pair of languages. It is true that many syntactic problems are unique to specific language combinations, and can even be different within the same pair of languages depending on the direction of translation.

We will discuss only those aspects of syntax that are typical of SI and depend on the specific conditions of this verbal activity. Naturally, we cannot fully abstract ourselves from specific language pairs: our examples will be from the same combinations (SI between English, French, Spanish and Russian) as elsewhere in the book.

The problems to be discussed are mainly psycholinguistic and arise from the fact that the discourse in SI is perceived *aurally* and that the translation begins *before the utterance is completed*, and very often even before the SL utterance syntactic structure is formed. In other words, the problems arise due to the conditions of perception and the constraints on human working memory.

These constraints make it necessary to maintain the general sequence of sense groups in the transition from the SL utterance to TL. This, in turn, is closely linked with the depth of probability anticipation and the integrity of the internal programme[1] of the TL utterance produced by the simultaneous interpreter.

A. A. Leont'ev suggested that the internal programme in the mind of a simultaneous interpreter is a *broken programme,* since it is borrowed from the outside by stages (Leont'ev 1969a: 169–170). Later this became an inspiration for Shiryaev's step-by-step model of the SI process (Shiryaev 1979). Let us consider this problem. An internal programme which is 'broken' into small sub-utterance fragments results in 'transcodage' or word-for-word rendering, which occurs, according to Lederer and Seleskovich (esp. Lederer 1981), when the sense of the utterance is not comprehended by the interpreter. This is not typical of skilled SI. To explore this question we can turn not only to

empirical observations of professional SI and their theoretical analysis, but also to experimental data. There is no doubt about the fundamental fact that the sense of each utterance, and thus the interpreter's internal programme for the production of her own TL utterance, is borrowed from the speaker. However, the degree of wholeness or fragmentation of the internal programme depends directly on the level of probability anticipation, and on its completeness – the number of levels involved in the process – at any given moment. Let us recall that we distinguished several levels of language performance: syllable, word, syntagm, utterance, discourse, and communicative situation.

For the generation and production of speech, a motor (articulatory) programme must be formed then implemented to articulate words (Zhinkin 1967; Chistovich 1965). This motor programme is formed to a depth of about 7 plus or minus 2 syllables (Chistovich 1965; cf. Miller 1956), which corresponds to the capacity of the working memory expressed in syllables, and also, according to Shcherba, roughly corresponds to the length of a syntagm.[2]

But the formation of the articulatory programme is known to be preceded by earlier stages of speech generation, based on the internal (sense) programme (A. A. Leont'ev 1969a; Akhutina 1975; Luria 1975; Zimnyaya 1978; Miller, Galanter, & Pribram 1960). As these authors have shown, between the internal programme and the motor programme lie the intermediate stages of speech generation, from syntactic structuring to the choice of the words to be used. Studies of various types of aphasia, as well as experimental and observational SI data containing 'translation errors', provide good evidence to that effect.

These stages culminate in the articulatory programme for a syntagm. In essence, they constitute the process of transition from a concurrent spatial mental scheme to a linear motor programme developing over time. The fact that several syntagms, or even a whole utterance and more, are sometimes produced almost without any intermittent pauses, seems to demonstrate that the motor programme can be implemented (i.e. speech can be articulated) concurrently with the background preparation of the early stages of subsequent programs, which will follow each other on the basis of a single general scheme (or *programme*, or *plan* (Miller, Galanter, & Pribram 1960)). As N. I. Zhinkin puts it in *The Mechanisms of Speech:*

> The word formed by the coder[3] cannot be passed on directly to the output level, because the result must be matched against the vocabulary in long-term memory. Besides, word linkages in the syntagm, as well as enclitics and proclitics[4] are to be taken into account, and phrasal pauses, stresses, and reductions of words in certain places in the utterance determined. Only after all that can phonetic structures organized in syllables according to the

> pronunciation rules be passed on to the output level. For error-free execution, such an operation requires far-reaching anticipation, to the depth of no less than a sentence. (Zhinkin 1967: 2371)

As Chistovich has shown, the temporal pattern of the articulatory programme is remarkably stable, and the rhythmic outline of each syntagm is invariant, thus if a change in the articulation rate of a syntagm is to be achieved, it will be similar to attaching a coefficient to the syntagm as a whole and applying it to the intervals between the syllable commands preset by the programme (Chistovich 1965).

Clearly, the anticipatory synthesis mechanism cannot begin synthesis *before* an internal programme is born. This merely means that the articulatory programme cannot be executed before all the previous stages of speech production, beginning with the internal programme of the utterance, or its mental image, have themselves been planned by anticipation. In other words, some time must elapse for previous stages to be planned before any portion of the articulatory programme can begin to be implemented. It follows that passages of error-free production of syllables, syntagms and whole utterances in SI, which accompany simultaneous listening to the developing SL discourse, cannot but point to anticipatory planning having been performed ahead of the actual articulation of each succeeding syntagm. We will assume that *the length of uninterrupted error-free articulation* of a speech chunk (and its anticipation) depend on the *depth of probability anticipation of the semantic structure* of the developing utterance.

Figure 14 shows a synchronised transcription of SI from an experiment (designed among other things to investigate interpreters' responses to nonsense input, Chernov 1978).

Let us begin the analysis of the chart with the following TL utterance, which shows evidence of interrupted motor programs and abnormal lengthening of syllables by the interpreter:

> *The sour sweet – eh – jumped down to earth – from fat – the . . .*
> [ðə ˊsauə ˊswiːt ˊəː ˊdʒʌmpt ˊdəun tə ˊəːθ frəm ˊfæt ˊðiː]

This rendition by the interpreter of the first nonsense (hence, non-redundant) string in the passage comprises 12 syllables, grouped around 8 stressed syllables, of which 11 (7 stressed ones) reflect the presence of 'broken' semantic subprograms ('subprograms' because there is evidence of at least one element of the whole programme being planned, i.e. the anticipation of the whole utterance). The segment is produced in roughly 6,8 s (6,800 ms), with each stressed

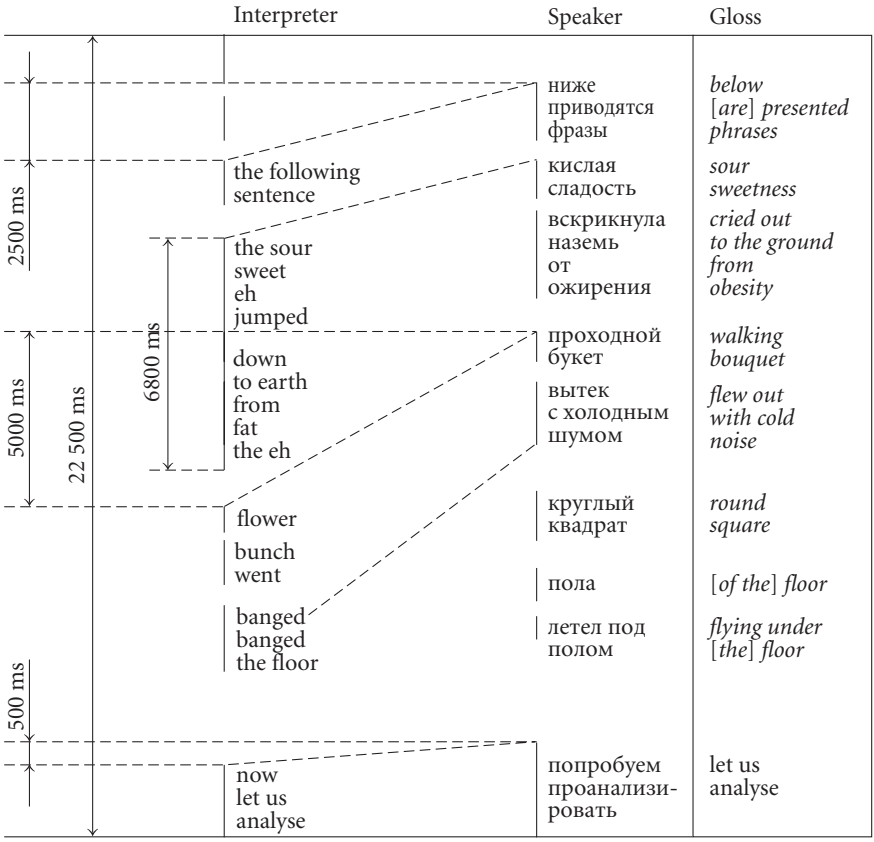


Figure 14. Synchronised Russian-English SI transcript (total length from Speaker's opening to interpreter's completion = 22.5 seconds; SL gloss provided to the right of the figure)

syllable together with an unstressed one attached lasting about 850 ms, instead of the average 200 ms for 'normal' syllables in most European languages): clear evidence that the internal programme of the utterance is indeed 'broken'.

The last stressed syllable in this segment, '*the*' [ˊðiː] is an example of an articulatory programme for only one syllable. This stressed '*the*' indicates readiness to start planning the next utterance, as also evidenced in the subsequent filled hesitation pause [ˊəː] of about 480 ms. The articulation of the utterance *flower … bunch went …* does not begin until about 980 ms after the definite article and voiced pause *the-eh*.

Clearly the motor programme for the definite article is available; but there is also doubtless a rudimentary programme (mental image) representing the anticipation of a whole utterance, since the lengthening and expectant intonation of *the-eh…* reveals a commitment to produce an utterance. However, at this stage this programme is still much too vague to be executed, hence the delay of 980 ms before the interpreter continues.

On the other hand, after the pauses and the decision not to render the third nonsense utterance (the round square…), the interpreter's lag (or EVS) drops sharply to 540 ms, which turns out to be quite sufficient for a confident start on the next segment *попробуем проанализировать*, rendered fluently and rapidly as *now let us analyse*.

The syntagm *now let us analyse* is produced in only 1240 ms, an average of 200 ms per syllable, while the phrase proper *let us analyse* is rendered very fast, in only 755 ms (155 ms per syllable). *Now* is an even more important element than the definite article *the* discussed above, since it heralds the introduction of a new subtheme of the discourse. Thus we see from the synchronised transcript that:

1. when the mechanism of probability anticipation is blocked, there is a lengthening of the interpreter's lag (EVS); in other words, of the delay from the time of reception of the source material in the SL discourse to the beginning of articulation of the new programme. The meaningful SL segment *Ниже приводятся фразы* is rendered as '*the following sentence…*', with a typical or average lag of 2.5 s (2500 ms). But the lag then lengthens to 5 s (5000 s) from *Проходной букет…* to the articulation of '*the flower bunch…* ' , and the semantic components contained in *проходной*, – *тек*, *холодный* in this concentrated and more or less nonsensical passage are completely lost in the interpretation. The interpreter apparently makes an effort to perceive them while articulating *The sour sweet…* (note the abnormal lengthening of articulation), but fails.
2. for the next, far more meaningful chunk *попробуем проанализировать* ('*Now let us analyse…* '), the EVS (the time necessary for perception, analysis and comprehension, and for building the internal programme at all its stages up to the articulation programme) drops sharply, to only one-tenth of the earlier lag. The articulation speed also drops to about one seventh of that of the preceding syllables, approaching a normal or average rate of 155 to 200 ms per syllable. We can now finally see evidence of deep planning, to the depth of a complete utterance and more, since the

articulatory programme for *now let us analyse* is ready almost concurrently with the end of the speaker's articulation of *проанализировать*.

Thus a detailed consideration of the synchronised transcript in Figure 14 points to a temporal interdependence between the perception of a syntagm and the integrity and depth (syllable, word, syntagm) of the internal programme for the production of its TL version. The chart also suggests that interpreters plan based on the mechanism of anticipation to the depth of an utterance and (in certain components) to an even greater depth.

In other words, *the internal programme of the TL utterance when the SL input has sufficient redundancy* (in contrast to when the input is dense and nonsensical, as in the middle segments of the above extract) *is developed long before the completion of the SL utterance and at least partly in relation to the general sense, and is anticipated to the depth of the whole utterance and frequently to an even greater depth.*

Further evidence to suggest that production is normally planned to the depth of a whole utterance is provided by the fact that the interpreters attempted to impose normal sentence structure on the meaningless experimental utterances (see Chapter 11).

Let us analyse another time-co-ordinated chart (Figure 15, below) of two utterances from an English SL passage (on the right of the figure) and their interpretation into Russian as produced in the experiment.

TL utterance 24 corresponds to SL utterances 30, 31, 32, and 33 on the left of the figure.

SL	**TL**
The United Nations Conference	Прошло два года
on Trade and Development	'two years passed'
has completed	со времени окончания
two years of existence.	'since [the] time [of the] ending'
	этой конференции ООН
	'[of] this UN conference'

At first sight, the interpretation '*Two years have passed…*' does not seem to match the original '*The United Nations Conference … has completed two years of existence*'. But the temporal sequence and flow visible from the transcript indicates that the interpreter has formed a complete internal programme for this utterance (i.e. to the 'depth' of the whole utterance) since her version shows evidence of the use of knowledge of the history of UNCTAD, and of the distinct meanings of the word 'conference' (here, 'Conference' refers to a permanent

Figure 15. Synchronised transcript of a segment of English-Russian SI

body of the UN family, with its permanent Secretariat, as distinct from an event in a series, as in *the first, second, third conference on*…). The interpreter waits until hearing the rheme *has completed two years of existence* before starting her own interpretation, and by placing it at the beginning of her sentence and using appropriate intonation she emphasises its relevance: *Прошло два года*…

For the next utterance, in contrast,

> *The progress in the implementation of the recommendations adopted at the first session of the Conference has been disappointing.*

the interpreter builds only broken, partial sub-programs. Production does not begin until after the perception of *adopted* (SL 37) and even then only with the weak existential predicate *были*… (‘*there were*…’, TL-25) carrying the temporal categorial component. The next two chunks only complete this weak rheme (TL 26), then frame a somewhat vague theme (TL 26) for the projected TL utterance:

…*проведены в жизнь*	–	*ряд положений резолюци*
…were carried out	–	a number of provisions of resolution

In other words, TL 25–27 shows only the expectancy of an actual rheme of the SL utterance (34–38), and an unfinished representation of its theme. The interpreter therefore resorts to a vague ‘filler’ based on the general sense of the discourse: *но общие результаты*…(*but the overall results*…), and only now decides to produce the actual rheme: …*оказались разочаровывающими* (*turned out to be disappointing*).

However, if read in sequence, the TL utterances seem to be quite logical and they obviously fit in to the overall discourse. Clearly, therefore, some components of the internal programme of the utterance are planned to a greater depth than a single utterance (otherwise we could not explain their cohesion), even while some other components cannot appear before the appearance of an appropriate word (or words) in SL. These latter components correspond to the SL utterance rhemes, and by definition are the most informative parts of the source discourse.

Generally speaking, the *cohesion* of the TL discourse quite convincingly points to a cumulative semantic process. More evidence of this can be seen in the interpreter’s use of anaphoric pronouns. Here is a typical example:

> […] *the aspirations of the* […] ***people*** *for freedom and independence. For many years* ***they*** *fought for* ***their*** *inalienable right to determine* ***their*** *own future*

For the first utterance we expect [. . .] *чаяния* [. . .] *народа добиться свободы и независимости*. For the second, since the standard Russian term for 'a people' (*народ*) is a collective singular noun, two different versions, with either the singular or plural pronoun, are possible, and in fact do occur in the interpreters' renditions:

(1) *В течение многих лет* ***он*** (***народ***) *боролся за своё неотъемлемое право определять* ***своё*** *собственное будущее. . .*
For a period of many years '**he/it**' (**people**) fought (3p. sg.) for **his/its** inalienable right to determine **his/its** own future

(2) *В течение многих лет* ***они*** (***люди ?***) *боролись за* ***их*** *– ?* (*своё*) *неотъемлемое право определять* ***своё*** *собственное будущее.*
For a period of many years **they** (**lyoudi?** = people, plural of person) fought (3p. pl.) for **their** inalienable right to determine **their** own future

Version (1) reflects the existence of a complete internal programme for the passage, ensuring cohesion in production, with the second utterance being based on the first. Version (2), in contrast, indicates that the interpreter's own previous utterance has gone from her working memory, so that (atypically) the input utterance is the only remaining source for production. The more experienced the interpreter, the more often (1) will be the norm.

The depth of the internal utterance programme determines how well-formed (grammatically and stylistically correct) the interpreter's speech will be, irrespective of whether she is working into her A or B language.

Analysis of empirical observations and experimental data suggests the following conclusions:

1. *Discontinuity in the internal utterance programme developed in the interpreter's mind as the first stage of TL message production is not inevitable; it may or may not occur.*
2. *The completeness and accuracy of the transfer of the semantic structure from SL to TL do not strictly depend on the integrity of the internal programme, although, as a rule, the integrity of the programme tends to improve the completeness and accuracy of the transfer.*

The integrity of the internal programme is a function of the completeness of the operation of the probability anticipation mechanism at various levels, and thus depends on the depth of the prognosis and the number of information peaks checked. The greater the number of levels and hence the number of information peaks [see Chapter 8, §35], the more complete the internal

programme, and the more complete and accurate the transfer of the semantic structure from SL to TL.

The integrity of the internal programme cannot but have an impact on the syntactic structure of the interpreter's production. However, even when the internal programme is whole, syntactic structure may remain under the influence of the source language. This is consistent with the contention that syntactic structure is perceived at certain syntactic junctures, link-words, 'fulcra', or, in the terminology of S. Lukanina, who has investigated this phenomenon (Lukanina 1974), syntactic 'props' – for example, 'items marking the beginning and end of noun-phrases, prepositions marking the beginning of prepositional phrases, etc.' (op. cit: 89). In particular, in experimental material hesitation pauses were observed directly following the preposition in TL, while the lexical equivalent of the SL preposition was transferred to TL in its most frequently used sense. For instance, the SL utterance

> *Since the adoption of the Resolution on the Development Decade this Assembly has increasingly turned its attention* ***to*** *the great problem of disparity between the standards of living of the developing and the developed countries*

was rendered as

> [. . .] *наша Ассамблея* [. . .] *постоянно обращала своё внимание* ***на*** [. . .] *огромную проблему различия*[. . .]
> '[. . .] our Assembly [. . .] constantly turned its attention on(to) [на] [. . .] [the] great problem [of] disparity'

Interestingly, during this test another interpreter uses the same preposition, although without any continuation, and loses most of the sense of the original:

> *Со времени революции*[. . .] ***на*** [. . .] *воздействие* ***на*** *страны развития* [. . .] *наша конференция очень много обсуждает различия уровня жизни в различных развивающихся странах.*
> 'since [the] time [of the] revolution [sic]. . . on(to) [на] . . . influence on(to) [на] [the] countries [of] development . . . our conference very much discusses [the] disparity [of the] living standards in different developing countries'

Such interference of the source language (here, English) in SI, although not an impediment to the probability anticipation process, often has a negative impact on the TL (here, Russian) syntax. It seems the greatest attention is being paid to semantic structure, while the syntactic structure is attended to only to the extent that it contributes to understanding the semantics of the discourse (see

also Lederer 1981; Setton 1999). In most cases, the sequence of sense groups in SL remains the decisive factor that determines the syntactic structure of the TL output.

41. Word order and communicative syntax

The match[5] between the formal (surface) syntax and communicative word order in an SL utterance plays a decisive role in structuring the TL utterance, with or without regard to the SL syntax. However, syntactic problems look quite different in (written) translation and simultaneous interpretation. First, radical changes in the sequence of sense groups, which are typical enough in translation, are in most cases impossible in SI due to the linear development of the SL discourse over time and constraints on the capacity of the interpreter's working memory, which can only hold a limited number of elements. The problem for SI lies rather in the need to maintain, as far as possible, the sequence of *sense groups* (not the *word order*) of the original. Second, even in cases where syntactic structure matches communicative word order, syntactic 'impasses' may occur due to the difference in valencies of SL and TL verbs and different SL and TL grammatical government.

It is well known that the more inflective a language, the freer the word order in that language, and vice versa. Russian, for example, allows relatively free word order as compared to the more fixed word order required in English. But it would be a mistake to believe that typological sameness or difference between languages is this clear-cut and straightforward. In the languages of our own corpora, besides English and Russian, which are at opposite extremes in terms of word order rigidity, French and Spanish, though closely related Romance languages, are also worlds apart from that point of view.

Fixed word order in the French language is mostly explained by the fact that French, particularly in its oral form, has lost most of its inflections both in the verb and the noun, and has a tendency towards analyticity, thus converging in terms of word order with the analytical English. In its conversational form, and hence in *belles-lettres*, French makes wide use of so-called disjointed or segmented syntax with a heavy reliance on pronouns (Bally 1955; Gak 1983). With disjointed syntax, disrupted syntactic groups and absolute constructions, the structure begins to resemble free word order, and a word may take any place in the sentence. Thus, while one cannot change the order of the words in *Marie aime beaucoup cet auteur*, if the nouns are isolated from the syntactic groups and replaced by pronouns, the absolute segments may occupy any place in the

sentence: *Cet auteur, elle l'aime beaucoup, Marie* (Gak 1983: 206). Segmentation allows one to transform any part of a regular sentence into the theme, and the other part into the utterance proper (Bally 1955: 71). However, such disjointed syntax is not at all typical of political and other formal statements at international fora, with the exception of special grammatical structures characteristic of such texts. Spanish, on the other hand, makes a much wider use of disjointed structures. In addition, the use of the preposition *a* with an animate (or personified inanimate) noun makes it possible in Spanish – unlike English or French – to begin a neutral, non-emphatic sentence with the direct object, reiterated using a co-referential pronoun before the verb:

> ***A** Ron Smith, agricultor de Nebraska, Estados Unidos, leer en la prensa acerca de los actos del terrorismo contra los norteamericanos **lo** disgusta mucho, **lo** pone mal. Y así lo dijo al periodista…*
> '[**to**] Ron Smith, farmer from Nebraska, USA, to read in the press about terrorist acts against North Americans really displeases **him**, makes **him** sick. And thus he said it to the reporter…'

Compare

> *Ron Smith, a Nebraskan farmer, does not like it at all, in fact, he is disgusted to read in the press about acts of terrorism against Americans. That is what he told a reporter…*
> *Ron Smith, agriculteur du Nebraska, n'aime pas du tout, est même révolté de lire des informations dans la presse sur des actes de terrorisme contre les Américains. C'est ce qu'il a déclaré…* (*or Ca ne plaît pas du tout à Ron Smith, ça le révolte même, de…*)
> *Американскому фермеру из Небраски Рону Смиту читать в газетах о террористических актах против американцев совсем не нравится, более того, кажется отвратительным. Об этом он заявил корреспонденту…*

The Russian version is the only one in which both the syntactic structure and communicative word order of the Spanish original are preserved. Let us also note that other word orders are possible in both Spanish and Russian, but not in English or French:

> *A Ron… lo disgusta…, lo pone mal, leer…*
> 'to Ron [it] displeases him, [it] makes him sick, to read…'
>
> *Leer… lo disgusta mucho a Ron…, lo pone mal.*
> 'to read … displeases him a lot to Ron, makes him sick'

Рону . . . не нравится . . . читать. . .
'[to] Ron . . . [it] is not a pleasure . . . to read'

In Spanish it seems here that any order of the elements of the utterance is possible. The unmarked structure, i.e. Subject – Verb – Direct Object – Indirect Object, may be changed by placing any element in the initial position, if this element comes to the speaker's mind first.

Thus, among the languages we have considered here, English and French are at one pole, with fixed word order, while Russian and Spanish are at the other extreme, with free word order. Of course, word order, or the sequence of sentence components in relation to each other, can never be absolutely unconstrained: *within* each constituent or word group, the sequence is more or less fixed. For example, in both Russian and Spanish, prepositions must precede their nouns: in Russian, attributive adjectives usually precede their nouns and adverbs precede their verbs, while in Spanish, attributive adjectives and adverbs normally follow the nouns and verbs they modify.

Generally speaking, free word order is mostly manifested in the flexible position of the complement, including the direct object, in the sentence. Unlike English or French, both Russian and Spanish offer the particular syntactic flexibility of allowing a direct object to open a stylistically neutral utterance[6] (Gak 1983; Chernyakhovskaya 1976; Yebra 1982).

Thus it would seem that from the point of view of word order, no syntactic problems should arise in interpreting from English or French into Spanish or Russian, while the greatest difficulties might occur from Russian and Spanish into English or French. But the situation is not that simple. It should be remembered that surface syntax is only a form of expression of communicative word order, and that this communicative word order makes use of the formal syntactic word order in its own specific way in each language; i.e. in each language there are specific ways of transition from the theme to the rheme in an utterance.

As a general postulate, in free word order languages, the communicative load (in a neutral style of speech) always tends to grow from the beginning to the end of the utterance, i.e. the communication develops from the theme to rheme, from topic to comment, from presupposition to focus, from given to new. This communicative order is, in principle, also typical for the fixed-word-order languages English and French,[7] but with one important exception: the so-called *monorheme* is an utterance where the *theme* contains new information. Monorhemes thus display a kind of semantic inversion from

rheme to theme which has serious implications for SI from English and French into Russian.

Let us now turn to the consideration of the linguistic (surface) means of rhematisation, or, to be more exact, *foregrounding* (see Chapter 4, §15 for our discussion on foregrounding).[8] Foregrounding (conferring communicative dynamism to a constituent) can be effected by a variety of linguistic devices in both the rheme and the theme,[9] as follows:

1. *Prosodic features* of the utterance: intonation patterns, logical stress, changes in the speaking rate, pauses.
2. *Emphatic structures*: An example typical in Spanish public speaking is the construction of the type *lo que … es que…*, which foregrounds the rhematic subject expressed by an extended proposition. For instance:

> ***Lo que** no podrá aceptarse jamás, a no ser que se admita el fracaso definitivo que nos conduciría al abismo de la frustración, **es que** en nombre de principios por todos sostenidos, **se consume la perpetuación** de un despojo secular, mediante el rechazo de una negociación que garantiza legítimos intereses y que no tendrá vencidos, porque en ella sólo triunfarán la concordia, la justicia y la paz.*
>
> '**What** can never be accepted, lest we admit ultimate defeat and be led to an abyss of frustration, **is that** in a number of principles upheld by all **there be consummated the perpetuation** of a centuries-old conflict through the rejection of a negotiation, which would safeguard legitimate interests and would yield no victors, since in it alone would triumph concord, justice and peace.'

3. *Rhematic particles and adverbs* like *really, actually, himself*; *précisément, donc*; *precisamente, justamente, solamente, exactamente, mismo*; *же, а именно, даже, ведь, только.*
4. *The final position in the utterance*. We observed that in free-word-order languages, the communicative load grows as the utterance unfolds, and that in fixed-word-order languages like English and French, the surface order of constituents also typically follows this pattern, with the exception of monorhemes.
5. *The indefinite article and indefinite adjectives* (the latter being the means available in languages which do not contrast definite vs. indefinite article, e.g. (*один, какой-то*) in Russian).
6. *Negation*, which attracts the peak of the communicative load.
7. *A long rhythmic group of words*, contrasted to a shorter one, tends to attract the logical stress and is an indication of a rheme.

8. *Fronting of the predicate,* i.e. beginning the sentence with it, where possible (i.e. in languages with free word order).
9. Means of *thematization* (*backgrounding*), including:
    a. Utterance presupposition (see Chapter 5 on inferencing): a previous (contextual) mention, or something known from the communicative situation.
    b. The definite article.
    c. Personal, demonstrative, and possessive pronouns, or other deictic features.
    d. Use of semantically weak verbs[10] (such as existential predicates or verbs denoting state, movement, or change of status) to mark a thematic predicate, e.g. *be, exist, lie, stand, appear, be found (located), arrive, turn into, become aware of, strengthen, raise* or similar verbs in French, Russian and Spanish.
    e. Lexical theme emphasizers: English: *as to…, as regards…, as far as… is concerned;* French: *quant à…*; Russian: *что касается…*; Spanish: *en cuanto a…, en lo que se refiere…*, etc. Adversative conjunctions of the type *and, but; et, mais; a, но*; *y, pero* belong here too. For example:
        – *And you, Mr. President, know it only too well.*
        – *Et Marie* (*Mais Marie…*), *elle le sait très bien*. (often accompanied by syntactic segmentation: 'but Mary, she is well aware of this')
        – *…но Петров этого не знает, а Иванов уже ушёл домой…*
        'but Petrov this doesn't know, and Ivanov [has] already left for home'
        – *Pero adoptar un programa, y Uds. lo saben muy bien, no es suficiente. Se necesita la voluntad política de los países desarrollados para realizarlo*.
        'but to adopt a programme, and you know this very well, is not enough. It needs the will of the developed contries to implement it.'

Foregrounding devices do not normally operate in isolation from each other, but are usually combined to operate in conjunction. The use of emphatic structures and lexical emphasisers is accompanied by appropriate prosodic contours, and vice versa; the fronting of the predicate in Russian is always accompanied by prosodic emphasis, and often by lexical emphasisers; in English and French monorhemes, the indefinite article or its equivalent is usually accompanied by a semantically weak verb as a predicate in the short opposite segment of the utterance; etc. Foregrounding devices can also be classified hierarchically by the strength with which they localise the peak communicative

load. Despite the fact that, following Vilem Mathesius, linguists generally consider word order to be the key feature of communicative 'grammar' (syntactic word-order versus communicative word-order), the primary means of foregrounding in the four languages considered still seems to be *prosodic features* (cf. also Gak 1983: 209–210).

This is well illustrated for Russian by an excerpt from the 1966 novel *The Snail on the Slope* by A. and B. Strugatsky,[11] where the character is lost in a vicious circle of thought (emphasis added):

> *Понимаешь, Колченог, мне* ***не надо*** *в Тростники. В Тростники мне* ***не надо***. ***Не надо*** *мне в*
> understand, Lamy, I should not [go] to Trostniki. To Trostniki I should not [go]. Should not [go] I in
>
> *Тростники. – Колченог внимательно слушал и кивал. – А надо мне* ***в Город*** *– продолжал*
> Trostniki. – Lamy was carefully listening and nodding. – But I have to go in the City – continued
>
> *Кандид. – Мы с тобой уже* ***давно*** *об этом говорим. Я тебе* ***вчера*** *говорил, что мне надо* ***в***
> Kandid. – You and I have been talking about it for a long time now. I told you yesterday that I have to [go] in
>
> ***Город***. ***Позавчера*** *говорил, что мне надо* ***в Город***. ***Неделю назад*** *говорил, что мне надо* ***в***
> [the] City. The day before yesterday [I] told you, I have to [go] in the City. A week ago [I] said, that I have to [go] in [the]
>
> ***Город***. *Ты сказал, что знаешь до Города* ***дорогу***. *Это ты* ***вчера*** *сказал. И* ***позавчера*** *говорил,*
> City. You said, you know to the City the way. That you yesterday said. And the day before yesterday [you] said
>
> *что знаешь до Города* ***дорогу***. *Не* ***до Тростников***, *а* ***до Города***. *Мне* ***не надо*** *в Тростники.*
> that [you] know to the City the way. Not to Trostniki, but to the City. I should not [go] to Trostniki.
>
> *Только бы не сбиться, – подумал он. – Может быть, я всё время сбиваюсь.* ***Не Тростники***,
> Just should not get it wrong – thought he – maybe I am all the time wrong. Not Trostniki,

а ***Город. Город****, а* ***не Тростники. Город****, а не* ***Тростники****, – повторил он вслух. –*
but the City, The City, not Trostniki. The City, not Trostniki, – repeated he loudly –

Понимаешь! Расскажи мне про дорогу ***до Города****. Не* ***до Тростников****, а* ***до Города****. А ещё*
[Do you] understand! Tell me about the way to the City. Not to Trostniki, but to the City. And even

лучше – пойдём до Города ***вместе. Не до Тростников*** *пойдём вместе,* ***а до Города*** *пойдём*
better – let us go to the City together. Not to Trostniki go together, but to the City we go

вместе. . . .
together

This passage clearly illustrates that a departure from standard word order may not affect the communicative structure of the utterance if that structure is prosodically emphasised. The rheme is again and again highlighted by means of both logical (focal) stress and negation (several times), the two devices working in conjunction. In this socially-oriented science-fiction novel, the marked word order plays a special stylistic role in evoking the character 's vain efforts to shake off the attempts of an outside force to control his mind.

Spanish linguists identify three prosodic devices for foregrounding a segment of an utterance in Spanish. The first is focal stress, realised as a slightly higher tone of voice on the stressed word in the utterance. As shown by Navarro Tomás, there is a general tendency to isolate the most important word in a narrative utterance by raising the tone on its stressed syllable a little more than on other stressed syllables in the utterance (Tomás 1959: 216). The second most important foregrounding device, just as in Russian, is intonational emphasis (a rising intonational pattern) at the end of the first segment of a bi-segmental utterance in which the initial segment carries a very low communicative load. The third means of prosodic foregrounding lies in a specific use of the pause. In a bi-segmental utterance, three intonational factors become linked together: the tone, the length of the final vowel, and the pause. The longer the pause, the higher is the preceding tone, and the longer the final vowel (Karpov 1969: 180).

In English and French, the focal stress tends to be located at the end of the utterance, or the syntagm, and thus usually has no distinct function as a foregrounding device (Gak 1983). However, French also seems to make specific use of the pause, as noted by Dejean (1978) (see Chapter 2, §§6, 7). The final

word in a syntagm may be emphasised by pausing, as is noted for Spanish and French by Yebra (1982: 422), who illustrates this with two French utterances and their renditions into Spanish. He shows how the degree of foregrounding rises before a short pause at the end of the syntagm:

French	**Spanish**
C'est alors qu'on se rend le mieux compte // de cette difficulté.	Es entonces cuando mejor se ve // esta dificultad.
C'est alors qu'on se rend compte le mieux // de cette difficulté.	Es entonces cuando se ve mejor // esta dificultad.

In this example, it is the focal stress and the rise in tone that cause a longer pause, rather than vice versa.

In French, since the stress is normally on the last syllable of individual words, rhythmic groups, syntagms, or whole utterances, it always accompanies the pause, and together with the latter can play the role of a syntactic (and hence semantic) 'divider' of the utterance. As shown by Gak (1983: 67), stress collects words into rhythmic groups in the utterance and frequently serves as an aid to parsing along with the rhythm and melody pattern:

Le docteur a trouvé cet enfant malade
Le docteur a trouvé cet enfant // malade.

The primacy of prosodic means of foregrounding is also a consequence of the fact that prosodic contour is the only one of these features which is always present, even with standard or neutral word order. *Emphatic structures* and *lexical emphasisers* seem to come next in the hierarchy of means of foregrounding. To support their role, they are often accompanied by prosodic features, as well as by inversions and negations. A few examples:

– *They themselves did it. He actually believes it. He really did so.*
– *C'est précisément la raison pour laquelle il est parti.*
– *Даже он может это сделать. Только он может это сделать.*
– *Justamente por eso quiero hablar ahora mismo.*
– *It is tomorrow and not today that we can do it.* (Rheme not in main verb phrase.)
– *It is in New York and not in Geneva that the United Nations has its headquarters.* (Rheme not in main verb phrase.)
– *The Security Council did adopt a resolution yesterday*. (Rheme in verb phrase.)
– *C'est de tout cœur et en toute certitude que je forme les meilleurs vœux de succès pour votre présidence.* (Theme fronted, rheme in verb phrase.)

– *Ce livre, je l'ai déjà lu.* (Theme fronted, rheme in verb phrase.)
– *Именно он, и никто другой, готов это сделать немедленно.* (Rheme not in main verb phrase.)
– *Он именно приехал, а не пришёл.* (Rhematic verb is emphasized, reinforced by prosody and negation.)
– *El que tiene que hablar eres tú.* (Rheme not in main verb phrase.)
– *Es que no lo sabe.* (Verbal rheme emphasized.)

Foregrounding may apply to the whole communicatively unsegmented clause:

– *Ce qui est vrai c'est qu'on a toujours parlé de cette résolution.*
– *Si quieres saber por qué abrí la puerta fue porque creí que eras tú.*

The next strongest means of foregrounding is, undoubtedly, the *end position in the utterance*, reflecting the general tendency of the sequence of sense groups in an utterance to progress from the known to the new, so that the communicative charge rises to a peak at the end of the utterance.

However, in stylistically neutral English and French monorhemes, the reverse order is observed, i.e. from rheme to theme. In monorhemes, the rhematic group, marked by the indefinite article, and strengthened by greater length (as contrasted to the theme in utterance-final position), occurs at the beginning of the utterance. The role of the predicate in such sentences is played either by an existential verb or some other semantically weakened verb:

> *Through TCDC,* ***available resources*** *in developing countries will be more effectively utilised.* ***Research*** *oriented specifically to the needs of the countries will be encouraged…*
>
> ***Une recherche*** *visant particulièrement à satisfaire les besoins des pays sera appliquée…*

Thus, in English and French, the indefinite article (or in the case of abstract and plural nouns, the zero article), as the marker of a sense group, moves the rheme to the opening position in the utterance. In other words, these foregrounding devices together override the rhematic attraction of utterance-final position, which is now occupied by the semantically weak verb.

In Russian, in those SI cases (see below) when these factors operate in opposite directions, the resulting utterance sounds ambiguous, and violates the communicative norm.[12] The coexistence in an utterance of two conflicting foregrounding devices drawing the focus in two opposite directions (e.g. end position and a relatively longer word group) is perceived as a deviation from the norm of Russian speech. Such deviations can be found in the rendering of

English monorhemes into Russian by beginner interpreters, mostly trainees in SI, in column 2 of Table 6 below. In the trainees' Russian versions of (1) and (2), the predicate is foregrounded by being placed in utterance-final position, conflicting with the prominence assumed by the longer group of the subject phrase and the semantic weakness (hence 'negative' foregrounding) of the verb. In the rendition of utterance (1), the noun *усилия* (efforts) may in principle collocate with *прилагаться, делаться, осуществляться*; since this is a rather abstract idea of existence, the verb may again be classified as existential or semantically bleached. These conflicts are perceived by a Russian ear as being at odds with Russian speaking norms.

The professional versions in column 3 (from the original conference transcripts) show ways of overcoming the beginner interpreter's word order difficulties. The '//' sign shows where the professional interpreter started interpreting in each segment.

Table 6. Communicative word-order in Russian-English SI

English SL	Russian student TL	Professional version
1. *Efforts* at all levels ***should be made*** // to further that policy	*Все усилия* на любом уровне ***должны прилагаться***, чтобы углубить и расширить эту политику. 'All efforts at any **level should** be applied to deepen and broaden this policy.'	***Следует приложить*** *все усилия* на всех уровнях для дальнейшего развития этой политики. '[One] should apply all efforts at all levels for further developing [of] this policy.'
2. *Proliferation* of nuclear weapons ***must be prevented*** // and all nations should be urged to sign and ratify the treaty on non-proliferation.	*Распространение* ядерных вооружений ***должно быть***, наконец, 'Proliferation [of] nuclear weapons should be finally prevented,…	***Следует предотвратить*** *распространение* ядерных вооружений, '[One] should prevent [the] proliferation of nuclear weapons…
	предотвращено и все государства должны подписать и ратифицировать договор о нераспространении ядерного оружия. and all states should sign and ratify [the] treaty on non-proliferation [of] nuclear weapons'	и нужно призвать все страны подписать и ратифицировать договор о нераспространении ядерного оружия. and [one] should appeal [to] all countries to sign and ratify [the] treaty on non-proliferation [of] nuclear weapons'

Table 6. (*continued*)

English SL	Russian student TL	Professional version
3. The implementation of the provisions // of these resolutions has been slow but *some progress* // ***has been made.***	Выполнение положений этих резолюций продвигалось медленными темпами, '[The] implementation of provisions of these resolutions has been moving [at a] slow pace… но *некоторый прогресс* ***был достигнут.*** but some progress has been achieved…'	Положения этих резолюций выполнялись медленно, 'Provisions [of] these resolutions [were being] implemented slowly…, хотя и ***достигнут*** *некоторый прогресс.* although [there has been] achieved some progress.'
4. I should like to mention here that recently the foreign ministers of the Nordic countries established a working group to investigate // what further *economic measures* ***may be instituted*** against…	Я хотел бы упомянуть здесь, что недавно министры иностранных дел скандинавских стран 'I would like to mention here that recently Ministers of Foreign Affairs of Scandinavian countries… создали рабочую группу, чтобы расследовать того…то, established a working group to investigate that… how… *какие дальнейшие экономические санкции* ***должны быть созданы*** в отношении… which further economic sanctions should be created in reference [to]'	Я хотел бы упомянуть здесь, что недавно министры иностранных дел скандинавских стран 'I would like to mention here that recently Ministers of Foreign Affairs of Scandinavian countries создали рабочую группу для *изучения* ***вопроса о*** *новых экономических санкциях* против… established a working group for [the] studying of the issue of new economic sanctions against…'

Another passage, from our Buenos Aires corpus (Appendix A, extract 4) also shows how these word order changes are typical of interpretation into the free word order languages. The English original is shown on the left, with one rendering each into French (fixed word order), Spanish (free word order) and Russian (free word order) in the other columns. The reader will note the structural word order changes in the Spanish and Russian versions, in contrast to the similarity of the French TL word order to that of the English original. Special attention should be paid to the fact that in Russian and Spanish, even slightly lengthening the predicate group and moving the predicate verb up

at least to the penultimate slot in the utterance (from its end position in the original) has the effect of easing the contradiction noted above.

Particularly noteworthy illustrations are the displacement of the adjective *эффективный* in utterance (6) to the end position in the Russian output: *. . .удастся использовать эффективнее*. Note also the introduction of formal subjects in the French versions: *Il convient d'accorder. . .* (2) and *l'on réduit au minimum* (4).

The lack of co-ordination between grammatical word order (subject + predicate, or NP + VP) and communicative word order (theme + rheme, topic + comment) in many languages causes major SI problems when SL and TL co-ordinate these in different ways. A typical difficulty arises in simultaneous interpretation from Russian (free word order) into English (fixed word order). Here is an example from Lynn Visson's *From Russian Into English* (Visson 1999: 99), with a word-for-word English gloss below the Russian original:

> *Выдвинутая в заявлении Президента от 15 января программа освобождения*
> 'proposed in [the] statement [of] the President of 15 February programme [of] freeing'
>
> *человечества к 2000 году от ядерного и иного оружия массового уничтожения*
> '[of] humanity by 2000 year from nuclear and other weapons [of] mass destruction'
>
> *рассматривает выделение средств на цели социального и экономического*
> 'regards [the] allocation (of) resources for [the] aim [of] social and economic'
>
> *развития в качестве важнейшей сопутствующей меры соглашений*
> 'development as [the] most important accompanying measure [in] [the] agreements'
>
> *по ограничению вооружений и разоружению.*
> '[on] [the] limitation [of] armaments and disarmament'

Many authors of manuals on simultaneous interpretation from Russian into English recommend as a general rule: 'Take the first word group that comes in the Russian sentence and make it the grammatical subject of your English sentence and then act according to syntactic circumstances' (there usually remain several syntactic possibilities to which the interpreter may resort depending on the context).[13] Observations of Russian-into-English SI indicate

that interpreters do generally adhere to this rule, as in this rendition of the above passage:

> *The President's statement of January 15th contained a programme for delivering mankind by the year 2000 from nuclear and other weapons of mass destruction. The programme provides also for the allocation of the appropriate resources for social and economic development as an important measure to accompany agreements on arms control and disarmament.*

Another example (the Russian sentence begins with an adverbial modifier):

> *Быстрыми темпами развивались в эти годы в России такие добывающие отрасли как нефть и газ.*
> '[at a] rapid rate developed during these years in Russia such resource sectors as oil and gas'
>
> *A rapid rate of growth was registered in Russia in this period by such industries as oil and gas.*
>
> *C'est à un rythme accéléré qu'en Russie ces dernières années se sont développés les secteurs du gaz et du pétrole.*

Finally, an example where the Russian sentence begins with the indirect object:

> *К опыту российских учёных, работавших в оборонке, охотно обращаются многие американские фирмы...*
> 'to [the] know-how [of] Russian scientists working in [the] defense industry [with] interest turn may American companies'
>
> *The know-how of Russian scientists who were engaged in weapons industries is in great demand among American companies.*
>
> *L'expérience des chercheurs russes occupés autrefois dans les industries des armements intéresse vivement de nombreuses compagnies américaines.*

Among other 'syntactic circumstances' and resulting possibilities, mention can be made of such means as the introduction of a thematic subject from the context and the use of a formal (structural) subject such as *there is* (*are*) or *il y a*, *on* (*l'on*), etc.[14]

42. Syntactic complexity, logical sequence and working memory

The strategy of breaking long utterances with rather involved syntactic structure into shorter ones was already discussed briefly in Chapter 7 (§34 on speech

compression).[15] This operation, to which simultaneous interpreters often resort, has a psycholinguistic explanation: difficulty in rendering a long utterance may arise when the syntactic structure of the input places an excessive load on working memory. The syntactic complexity of an utterance, and hence the additional load on working memory, is determined by:

a. the number of propositions in the utterance,
b. long-range dependencies, with long or complex material interrupting the constituents of the main clause;
c. complex or multiple clausal subordination;
d. a non-linear sequence of predicates in the utterance.[16]

All these factors in syntactic complexity are illustrated in this utterance from our UN corpus:

> *If I assume*
>
> *that we accept*
>
> *that a conscious movement towards a new security system is preferable to random and spontaneous change*
>
> *then*
>
> *one of the main criteria*
>
> *by which even disarmament proposals should be judged must be their contribution to the creation of a new security system.*

1. *Number of propositions*: Nine propositions make up the semantic structure of this utterance. Some of them are projected on the surface level as nominalisations (*a conscious movement…, their contribution to… etc.*), which requires an additional processing effort during comprehension,[17] as compared, for example to

> *We prefer that we move consciously towards a new security system instead of allowing the situation to change in a random and spontaneous way…*

and

> *…must be the extent to which the disarmament proposals contribute to the way in which a new security system should be created*

2. *Long-distance syntactic dependencies*: the conditional consequent '*then* …(*one of the main criteria…*) is separated from its antecedent '*If* (*I assume…*) by 19 words. The pronoun *their* in *their contribution* is 6 words away from its antecedent *disarmament proposals*.

3. *Non-linear presentation* of entities and propositions in the extract can be illustrated by paraphrasing it to introduce the propositions in a more linear or 'logical' sequence:

> *We seem to reject anarchic and spontaneous change and to prefer that we move towards a new security system consciously.*
> *If that is so, then one of the main criteria of assessing disarmament proposals should be their contribution to the new security system*
> (or: *Then we should judge disarmament proposals by how they contribute to a new security system*).

4. The processing difficulties posed by the example discussed will be clearer if we recall Ingve's (1965) depth hypothesis. According to this hypothesis, at the beginning of each utterance a speaker undertakes a number of psychological 'commitments'. For example, by saying *If*… the speaker commits himself to do at least the following: utter a sentence (1), beginning with a conditional clause (2) with a subject (3) and predicate (4), followed by a main clause (5) beginning with a conjunction *then*… (6), i.e. he undertakes at least six syntactic commitments, all of which must be kept in his working memory until each of them is fulfilled. The number of such commitments determines the 'depth' of the utterance. This depth of commitment is thus greatest at the start of the utterance, diminishing as the commitments are fulfilled (i.e. as the speaker's internal programme for the utterance is implemented).

The hearer, on the other hand, in order to comprehend the end of the utterance must keep in working memory the elements of syntactic structure (which cannot be recoded into bigger sense chunks) which have been generated so far, and whose hierarchical organisation determines the utterance's depth for the *hearer* ('regressive depth'), until the complete syntactic tree is derived. That is why utterance length affects processing difficulty (or ease), especially when the regressive depth is excessive (more than seven plus or minus two).

In a study of the processing ease or difficulty of utterances of varying regressive depth and length (calculated in number of words between syntactic junctures), Lushchikhina (1968) found a negative correlation between the pilot's perception of air traffic controllers' commands and the depth and length of the commands. In our example the regressive depth works out as 20, putting it (at least theoretically) beyond the capacity of the human working memory and well beyond the maximal depth values of 9–13 for adequate comprehension registered by Lushchikhina. The Russian SI rendition of that

utterance is transcribed below in Table 7 with a translation into English; compare the version which appeared later in the official, edited proceedings (right-hand column).

It is easy to see that breaking the utterance into two facilitates not only the SI process, by relieving the overload on working memory, but also the perception of the utterance by the audience. Examples of similar utterances in French and Spanish SL were given in Chapter 2, §7. Practising SI professionals quite often resort to this method of simplifying SL syntactic structure.

Table 7. Original English, Russian SI version and official translation at the UN

English original	**Interpreter's rendition (with literal gloss)**	**Official Russian record (with literal gloss)**
If I assume that we accept that a conscious movement towards a new security system is preferable to random and spontaneous change, then one of the main criteria by which even disarmament proposals should be judged must be their contribution to the creation of a new security system.	*Думается, мы все согласны с тем, что* 'I think that we all agree that *сознательный путь к новой системе* a conscious way towards a new system *безопасности лучше случайных и* [of] security is better than fortuitous and *стихийных перемен.* spontaneous change.' *Но тогда о предложениях по* 'But then proposals on *разоружению нужно судить по* disarmament should be assessed by *их вкладу в создание новой системы* their contribution to a new system *безопасности.* [of] security.'	*Если я буду считать, что мы все* 'if I would assume that we all *принимаем идею о том, что* accept the idea about it, that *сознательное продвижение к* [a] conscious movement towards *созданию новой системы* creating [a] new system *безопасности предпочтительней* [of] security [is] preferable [to] *анархичных и стихийных перемен*, anarchic and spontaneous change, *то одним из главных критериев*, then one of [the] primary criteria, *на основе которых* on [the] basis [of] which *должны оцениваться* [one] must assess *предложения по разоружению*, [the] proposals on disarmament, *должен быть их вклад* must be their contribution *в создание* to [the] creation [of] *новой системы безопасности.* [a] new system [of] security.'

43. Short and extended predicates

The range of possible syntactic variation resulting from the restructuring of utterances is further augmented by the choice between using a clause to express a proposition or nominalising it as a verbal noun. A verbal noun can be developed into a clause provided that its factivity is unambiguously identified, while the reverse process – nominalisation – often allows the interpreter to bypass the category of factivity if she has missed it in perception. This generalisation holds true at least for the European languages discussed in this book.

As Arutyunova (1999) has shown, a nominal construction based on a whole utterance or clause can be used later in the discourse to stand for the proposition it contains. Three types of nominalisation can be distinguished according to the type of proposition they represent or generalise:

1. nominalisation of *a process, event or occurrence*, generalising over its time, place or manner;
2. nominalisation of a *fact*, expressing the mere fact of occurrence or non-occurrence of something, i.e. its bare factivity, very often used to make value judgments; it may be introduced by *this fact* or *the fact that. . . ;*
3. the nominalisation of an *assumption* (*belief, opinion*) usually generalises the proposition referred to in denoting it (‘*these assumptions. . .*’, ‘*this belief. . .* ’, etc.)

All three types may also be replaced by the bare deictics *this* or *that.* An example will illustrate how this possibility is used in SI.

English SL	**Russian TL**
What is needed is close co-operation so that an effective international review of ***how human rights are respected or abused can be carried out.***	*Необходимо более тесное международное* ‘[it is] necessary more close international *сотрудничество* ***для подготовки*** cooperation for [the] preparation *действенного международного обзора* [of] [an] effective international review ***положения дел в области*** *прав человека.* [on] [the] state [of] art in [the] area[of] human rights’

The nominalisation of clauses is quite typical of interpretation into Russian. When the TL is English or French, on the other hand, we more often find a 'partial' nominalisation introduced by the words *what is…; ce qui…* [verb phrase], *c'est*…. In Spanish SI output, the structure *lo que* [verb phrase]… *es que*… is typically used to render the Russian verbal noun, thus considerably increasing the flexibility of syntactic structures in Spanish.

The syntactic variability necessary for paraphrasing and syntactic restructuring in the transition from SL to TL is also achieved by the use of an extended predicate – an analytical verbal structure consisting of a semi-desemanticised verb and a verbal noun – instead of the simple verb. Examples include:

decide → *take* (*adopt, approve*) *a decision*
agree → *reach* (*come to, enter into*) *an agreement*

appuyer qqn → *prêter son appui à qqn*
se libérer → *obtenir* (*conquérir*) *la liberté*
s'intéresser → *porter un interêt*

acordarse → *llegar al acuerdo*
reunirse → *convocar* (*celebrar*) *una reunión*
trabajar → *hacer* (*realizar*) *un trabajo*

работать → *делать* (*вести, проводить*) *работу*
торговать → *вести* (*осуществлять*) *торговлю*
заявить → *сделать заявление, выступить с заявлением*

This method of translation considerably extends the range of possible synonymous paraphrases and increases the syntactic flexibility of the utterance (Figure 16).

In addition, these verbal noun constructions provide additional possibilities for rendering aspectual and case relations, which is often impossible with the verbal predicate:

освободиться → приобрести (*завоевать*) *свободу, пользоваться свободой, потерять свободу, лишиться свободы, предоставить свободу, лишить свободы*

agree → reach (*come to, enter into*) *an agreement; execute* (*violate, repudiate, scrap*) *an agreement; an agreement is in force* (*stands, expires*)

influencer → exercer une influence, prendre de l', subir l', perdre l', échapper à l'influence

ayudar → prestar (*pedir, exigir, aceptar, recibir, negar, rechazar*) *la ayuda*

Simple paraphrases	… and additional options with extended predicate
The committee agreed on the question.	*The committee reached an agreement on the question.*
The question was agreed on in the committee.	*An agreement on the question was reached in the committee.*
The question agreed in the committee…	*An agreement on the question reached in the committee…*
Ma délégation s'intéresse beaucoup à cette proposition.	*Ma délégation porte un grand intérêt* (*accorde, attache, a un grand intérêt*) *à cette proposition.*
Cette proposition intéresse beaucoup ma délégation.	*Cette proposition présente* (*offre*) *un grand intérêt pour ma délégation.*
Las Naciones Unidas ayudan a los países en desarrollo.	*Los países en desarrollo reciben la ayuda de las Naciones Unidas. La ayuda prestada a los países en desarrollo por las Naciones Unidas…*
Las Naciones Unidas prestan la ayuda a los países en desarrollo.	

Figure 16. Paraphrase with an extended predicate (verb + verbal noun)

Thus in all these four languages, predicate extension generates greater syntactic flexibility (paraphrasing options), allows the expression of aspectual and case relations, allows for nominalisation of the proposition where necessary, and finally, accommodates the use of qualifying adjectives which can now be attached to the verbal noun.

This chapter has focused on the syntactic problems in SI which can be resolved by resorting to syntactic restructuring while preserving the communicative word order and the functional perspective of the utterance. Changes in the syntactic word order which are often necessary in (written) translation to preserve the communicative word order, i.e. the sense of the utterance, often become impossible in SI since they would overload the interpreter's working memory. This is why, for example, the first noun phrase of a SL sentence must frequently be turned into the subject of the TL utterance. In such cases this may lead to shifts from active to passive voice or vice versa, the use of a conversive verb,[18] or other paraphrases according to availability in the interpreter's own lexicon. The objective of the interpreter here is to make the syntax of her TL utterance as flexible as possible.

Chapter 10

SI and Anokhin's theory of activity

44. SI as a functional system

In the 1970s P. K. Anokhin, a prominent Russian neurophysiologist and disciple of Pavlov, developed and presented his theory of the Functional System as the main mechanism of human activity (Anokhin 1978). Anokhin proceeded from the assumption that our view of the phenomena of our world as discrete is artificial, and that in reality they all unfold in a temporal continuum. Life, he claimed, is a manifestation of the most vital discrete events standing out from the real continuum of unnoticeable phenomena, and that it is in the nature of any biological entity as it develops to fix the essential aspects of its life, its achievements and failures.

This assumption forms the basis on which Anokhin formulated and elaborated his theory of *functional systems*, i.e. systems that develop in the human organism to ensure its vital functions. According to Anokhin, such a system is formed under the influence of something useful for the entity, which in the case of a living organism we may call *a system-forming factor.* The system has a structure of its own, and its function is ensured by key physiological mechanisms with the participation and under the control of the central and peripheral nervous systems. These systems underlie the behaviour of an individual human being.

Human behaviour within the spatio-temporal continuum thus appears as a continuum of large and small results, which are necessarily evaluated by a mechanism known as *afferentation*. 'Reverse afferentation', according to Anokhin, is a biological feedback mechanism:

> The result dominates the system, and the impact of results prevails over the formation of the system [. . .] The result affects the system in an imperative way; if it is inadequate, the information about the inadequacy of the result immediately acts to restructure the entire system, trying out all the degrees of freedom, and finally every element joins the activity with those of its degrees of freedom which contribute to the achievement of the desired result.
>
> (Anokhin 1978: 27–48)

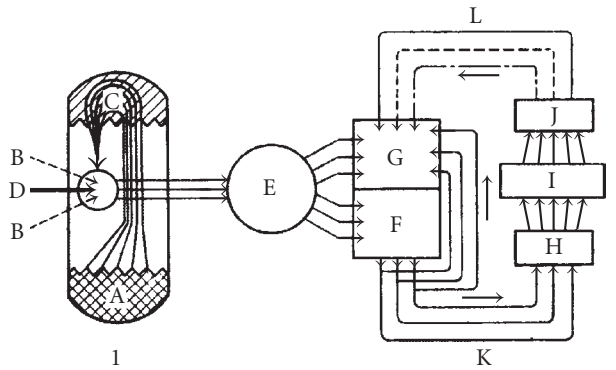


Figure 17. The functional system as a logical model of a behavioural act (Anokhin 1978) (see Table 8 below for a key to the main components of the system)

The system also includes a stage of *afferent synthesis*, at which a decision is made about the desired result. At the moment of decision-making, a process occurs which foreshadows the actual event a long time in advance. This process is in no way progressive. It anticipates a result, encoded in its major parameters, which may be obtained minutes, hours, possibly even years later. To anticipate events is above all to *actively follow a set objective* until it is attained. In Anokhin's analysis, the basis of behaviour lies in the functional systems – or rather the continuum of functional systems – which are formed in a living being and ensure its activity:

> In inorganic objects, the physical continuity of outside events is mere continuity in space and time. For a human being, not all of the elements of this time and space continuum are equally important. This is the key to explaining how a [human] organism is able to overcome this apparent chaos in its reaction to outside events. The idiosyncrasy of the workings of the brain lies in that it not only reflects the spatio-temportal continuum, but also, due to a special ability of organized matter, among other things, accumulates past experiences. This attribute of the human brain is manifest in its ability to construct anticipations of events through the continuum. This same capacity of organized matter has been widely used throughout the evolutionary process.
>
> (Anokhin 1978: 27–48)

Anokhin provides the above graphical representation (Figure 17) of a functional system as a logical model of a behavioural act, which serves as a basis for a 'conceptual bridge' between the levels of systemic and analytical processes.

We can now see that the simultaneous interpretation model described in the previous chapters coincides in all its major characteristics with Anokhin's

representation of the functional system of a behavioural act. This cannot but signify that the mechanism which drives SI, a functional activity of the higher nervous system which we have represented by the probability anticipation model, is in fact simply an example of a specific functional system created in the human organism to enable a particular activity – the complex bilingual communicative-discourse activity known as simultaneous interpretation. As we will see, the key features of SI can be shown to fit the general representation of a functional system and to be the result of certain mechanisms: primarily those of probability anticipation and anticipatory synthesis, by means of which the stated objective of the activity can be achieved. When we align the elements of the above diagram of a functional system with those of our model of SI (Table 8), we see that they are virtually identical.

The subconscious decision to begin interpreting the utterance or part thereof – when the overall sense of the whole discourse is already clear – is preceded by *conceptualisation* of a given chunk of the discourse (part or all of an utterance), which corresponds to the *afferent synthesis* stage in the functional system model (1, left side of Figure 17). As must certainly be clear by now, the interpreter can conceptualise a given discourse chunk without overloading working memory by analysing its semantic structure, by using her knowledge of the communicative situation and background ('thesaurus') knowledge stored in her long-term memory. All these processes are driven by a strong motivation to comprehend the particular utterance and the discourse as a whole, and to provide an adequate interpretation. It is easy to see from both Figure 17 and Table 8 how, in the functional system model, these processes correspond closely to situational afferentation (B) and past memory (C), which are triggered by the motivation (A) dominant at a given moment.

The trigger or *authorising afferentation* here (D) is the comprehension of the *sense* of a given segment of the discourse (or, failing this, a decision to begin a word-for-word translation when working memory overload is imminent). The decision point (E) actually signals the completion of the *afferent synthesis* of a given discrete speech chunk (1). By this time, the internal programme for the TL utterance (F) is wholly (or mostly) ready, and thus also necessarily the corresponding motor (articulation) programme, which is usually formed in speech for one syntagm at a time (Chistovich 1965). At the same time, the central part of the translation act in SI is ready: against the background of comprehension of that part of the discourse which has already taken place, a probabilistic projection is made (G) of the sense of the current discourse segment, and of the current utterance. This is a model of the future, an 'acceptor of results of an action' (Anokhin), or indeed, the *sense* in which the

Table 8. Simultaneous interpretation as a functional system

Fundamental parameters of a functional system	Key steps (Fig. 18)	Functional system of SI activity
AFFERENT SYNTHESIS	1	CONCEPTUALIZATION OF DISCOURSE IN SI – PROBABILITY ANTICIPATION PROCESS
Dominant Motivation	A	Effort to comprehend the sense of SL discourse and recreate it in TL
Situational Afferentation	B	Analysis of the discourse sense structure in SL Orientation in the communicative situation of SI
Memory	C	Thesaurus of background information in the interpreter's memory
Trigger	D	Comprehension of a discourse chunk; or threat of working memory overload
DECISION POINT	E	DECISION TO BEGIN INTERPRETATION
Programme of Action	F	Internal programme of the utterance, including syntax/vocabulary and a syntagm articulation programme
ACTION RESULT ACCEPTOR	G	'MODEL OF THE FUTURE' BASED ON PROBABILITY PROJECTION
Efferent Stimulations	H	Anticipatory synthesis, execution of the articulation programme
Action	I	Execution of the utterance or part thereof in TL
RESULT OF ACTION	J	UTTERANCE IN TL
Result parameters	K	Discourse semantic structure analysis in TL Syntactic structure of the utterance Prosodic characteristics
REVERSE AFFERENTATION	L	SELF-MONITORING MECHANISM

TL utterance produced by the simultaneous interpreter should correspond to the utterance in the SL.

This is the central mechanism of simultaneous interpretation, imposed by the impossibility of continuous perception of a SL discourse, and by the fact of speech perception in an extreme environment instead of under normal conditions. This mechanism is made possible by the objective (linguistic) and subjective (semantic, inferential) redundancy of the discourse for the interpreter, resulting in her making linguistic, cognitive, situational, and pragmatic inferences. This mechanism is key to SI because it bears the entire responsibility for

attaining the desired result and embodies the specific nature of simultaneous interpretation.

The 'result parameters' of the functional system model (K) correspond to the semantic structures of the utterances of a cohesive TL discourse produced by the interpreter within the Probability Anticipation Model of SI. The quality of output is controlled through self-monitoring (to be discussed below), which corresponds to a process of *reverse afferentation* in the functional system model (L).

Two mechanisms, or states – *attention* and the *level of self-awareness* of actions and operations – play a key role in enabling the self-monitoring function under 'normal' SI conditions. Under certain special conditions, such as acoustic or semantic 'noise', very fast speech input, lack of adequate background or specialised knowledge to comprehend a particular message, etc., all available resources may switch away from conscious self-monitoring to comprehension of the SL discourse. In this case, the outcome of interpretation is left completely or almost completely unmonitored, and the success of SI depends entirely on its central mechanism: *probability anticipation*.

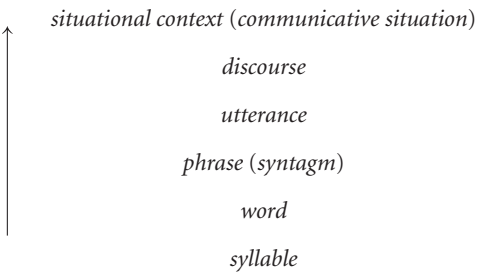
45. Probability anticipation as a multilevel mechanism

We have postulated that the main psycholinguistic mechanism which makes SI possible at all under the extreme conditions of this task (concurrent reception and production) is probability anticipation by the interpreter of the development of the message. To demonstrate this, it was necessary first to establish the objective and subjective foundations of this mechanism 'at the source', in the SL message and its situational context, and then to demonstrate the mechanism 'in action'.

Since probability anticipation depends on redundancy in the speech carrying the message (Chapter 6: §§28–29), our first objective is attained if we can show the required degree of redundancy in discourse.[1] This was done in Chapters 4 and 5, where we concluded that a necessary and sufficient degree of redundancy – higher than the average for a given language – is reached when the *objective* (*linguistic*) redundancy of a cohesive discourse is augmented with a sufficient degree of *subjective* redundancy of the discourse for the interpreter (Chapter 5). The relatively high degree of redundancy in public or political speeches (the usual fare for SI) can be illustrated by contrasting them with very low-redundancy texts, such as literary prose and poetry, which have been empirically and experimentally shown to be impossible to render adequately in

SI.[2] In the present Chapter we will use experimental and analytical data to try to demonstrate the mechanism of message probability anticipation in action.

We assumed the following hierarchy of levels in discourse and in discourse processing, which can thus represent the scope of operations of the message probability anticipation mechanism in SI:



Qualitative redundancy increases by at least an order of magnitude at each step from bottom to top. The basic unit, the *syllable*, is already a redundant way of encoding phonemes (Chistovich 1965; Zhinkin 1967). Experiments have shown that CV (consonant-vowel) syllables, which have an average duration of 200–250 ms, are identified within 42 ms (30 ms of the transition from the consonant to the vowel and 12 ms of the steady-state portion of the vowel) (Massaro 1975). There is further redundancy in the combination of syllables to form *words* (Chistovich 1965; Zhinkin 1967). The *phrase* (*syntagm*) is redundant in using at least three elements to represent sense: empirical semantic components, categorial semantic components, and prosodic features; for example, according to Chistovich (1965), the rhythmic pattern of a syntagm is invariant and carries information about its nature.[3] The *utterance* is redundant both in its components and as a unit, as well as by virtue of being part of a discourse. Finally, redundancy at the level of the *discourse* has already been discussed in some detail, particularly in connection with its *situational context*.

If we artificially isolate the speech levels of the message development probability anticipation model (keeping in mind their interdependence in reality) we can see more clearly where different specific methods of study are possible and necessary to provide a basis for further investigation of the SI mechanism. Four tiers can be distinguished, each of which should be studied with specific methods, always bearing in mind the object and the product of the SI activity: the semantic structure of the discourse:

1. The scope of **prosody**, on the first tier, encompasses the first four units, from the syllable to the utterance. Here redundancy arises in the percep-

tion of the speech sound waves. Probability anticipation may use aspects of phonotactics, intonation and rhythm, all of which may carry discriminatory information about lexical semantics, and, from phrase or syntagm level, about the overall sense.

2. The second tier, **syntax**, concerns the units *phrase* and *utterance.* Syntactic analysis – particularly communicative syntax and theme-rheme structure – is relevant to the study of this level, since categorial semantic components also contribute to the sense of the discourse.
3. The third or central tier of the model concerns **semantics**, embracing the levels of the *phrase* (*syntagm*), the *utterance,* and the *discourse*. This tier helps to reveal the discourse semantic structure and may be regarded as the most important tier of the mechanism.
4. The fourth, or 'top' tier of the model – the **inferential** tier – comes into play at the three uppermost levels, from the utterance to the whole situational context. It is at this tier that we have described the interdependence between features of the communicative situation and components of the semantic structure through inferences of the cognitive, situational and pragmatic types. Because the discourse semantic structure is the central object and product of SI, the levels of the utterance and the discourse play a key role; all the others are subsidiary, providing information, extracted through level-specific processes,[4] which contributes to the whole sense of the message. In other words, all the levels of the probability anticipation mechanism converge on the inferential tier.

Describing probability anticipation as 'multilevel' obviously means that all or several of the levels are involved, concurrently or sequentially as the case may be, in the perception and comprehension of the SL message with a view to its immediate transference into TL. The human mind can undoubtedly operate on all these levels, in turn or even concurrently. We might even hypothesise the operation of more than one working memory, each with its own limited capacity. But just as the redundancy in speech is multiply expressed, so does the probability anticipation mechanism operate as a multichannel device in search of informational peaks, or points of information density, which can be found at various levels, or at several or even all levels concurrently, or even only at the top level, depending on the complexity of the SL discourse for a given simultaneous interpreter.

The neat level and tier structure of the model naturally involves some theoretical simplification of the complex concurrent processes involved in real-life SI. The levels and tiers are based not only on theoretical and empirical

considerations, but also with a view to offer a practical basis and an instrument for further investigations of the SI process, since they facilitate the analysis of probability anticipation factors by helping to visualise the process, in particular the different bases for probability anticipation.

A brief comment is needed on the role of the *word*, that symbol of human language. An individual word, being devoid of sense, cannot be an object of SI, except for those cases when it constitutes an utterance. But even though the word as such is never an object of translation, redundancy at this level (a redundant syllable, for example) is still significant for the perception of higher order units, in this case the word. The perception of individual words may in turn become significant when they are not a part of a unit of sense in discourse, as for example in the enumerations often found in public speeches, which may list little known geographical names, kinds and types of weapons used or captured, various institutions supporting the speaker's organisation, etc. Our experimental corpus (see Chapter 11) included an enumeration of ancient African countries:

> *The Africans . . . built kingdoms and empires and had an impeccable standard of communal life and morality. They had the empires of SOCOTA, GANDA, KAHNU, GHANA, MALI, SOMBOI, BANYU, HARAR, GONDAR, and many more.*

Of the capitalised names in this extract, only those with parallels in the names of African states existing today were rendered by the subjects in a recognisable form.

In the theoretical literature on translation we find a reference to translation 'at the *phoneme* level' when rendering names of people and geographical names, 'when phonemes serve as translation units [. . .and] SL phonemes are replaced by the TL phonemes closest to them in articulation and acoustic features' (Barkhudarov 1975:176–177). But this process cannot guarantee the 'similarity' of the TL name with the SL name, since the operation is accompanied by the loss of phonotactic features of the word, and as is well-known, proper names such as the names of conference participants are often distorted sometimes beyond recognition when they are read out by a speaker (such as the chairperson) to whom they are foreign. However, when unknown names are rendered in SI, what is rendered is not phonemes but usually phonotactic features, including the number of syllables, syllable patterns (CVC, CCV, etc.) and stress.[5]

Psychologists use the concepts of *distinction* (*discrimination*) and *recognition* (*grasping*) (Zhinkin 1967)[6] to explain this phenomenon. Noting that

phonemes, as bunches of distinctive features, lack redundancy almost entirely, Zhinkin points out that phoneme-by-phoneme identification is possible but uneconomical, since it would fail to capture information about the interdependence of the elements of the ensemble, or higher order unit (Zhinkin 1967: 2369). A composite unit like a syllable (made up of phonemes) or a word (made up of syllables) is identified in an operation of *recognition*, whereas discrimination is necessary to identify an unfamiliar assembly like an unknown word or syllable, formed by unknown or little-known phonotactic rules, as may be the case with unknown proper names. In other words, familiar composites can be identified by phonotactic rules or coherence algorithms (Zhinkin 1967), so that a root morpheme can often be identified on the basis of only one or two phonemes and the whole word by its *gestalt* features, whereas an unknown word has to be deciphered phoneme by phoneme. Zhinkin describes this process for normal conditions of perception. In concurrent listening and speaking, as experiments and observations of professional in-conference SI confirm, the need to identify a word (to say nothing of a syllable) by distinction or discrimination results in SI failure. Paraphrasing Zhinkin, we may say that word-by-word recognition in SI is so uneconomical that it is possible only for very short chunks of one or two words, in a redundant context. Identification of an unknown word under SI conditions is impossible – unless we mean retrieval of some semantic components contained in the word from the context, though even that is only possible when the missed word is not the most informative sense-producing word of the utterance.

Most words in the vocabulary of any language are polysemous, and an isolated word possesses insufficient redundancy. This is why the mechanism of message development probability anticipation cannot operate within the framework of an isolated word, and why SI of isolated words (or word lists, for that matter) is impossible.[7] However, the degree of redundancy in a single word as a syllabic ensemble is sufficient to enable recognition of words as separate units when they are part of meaningful utterances that, in turn, make up a cohesive discourse.

Summarising all the above we may say that the probability anticipation of the message development, with anticipatory synthesis, is a major mechanism of the complex bilingual verbal communication activity of SI, ensuring simultaneous listening and speaking, or interpretation, in the extreme conditions described above; that this mechanism operates at an hierarchy of speech levels; and that the very possibility of its operation is based on the redundancy of discourse, both objective (linguistic) and subjective (extralinguistic) and the inferencing ability of the simultaneous interpreter.

The interaction between levels begins from the moment the floor is given to the speaker, i.e. the moment which immediately precedes the act of speech. With a familiar speaker (a known 'S factor' in the communicative situation), a certain general probability forecast of the semantic structure of the forthcoming discourse is formed in the interpreter's mind, which is further fed by other known factors of the communicative situation. This forecast may be called a top-down prognosis operating at the inferential tier. With an unknown speaker and unknown (or little known) communicative situation, the probability anticipation process begins at stage two.

Stage two of anticipation begins 'at the bottom', i.e. at the prosodic tier, after which the syntactic and semantic tiers of the system are engaged explosively, like the proverbial mushroom cloud.

As the discourse develops further, and usually within the first few utterances, a field of probabilities opens for anticipation to the depth of the entire discourse (or of a topic, if the discourse contains more than one topic). The different levels of the mechanism must interact at all times: without such interaction in SI there will be failures, losses, grammatical errors and stylistic and sense distortions. At the same time, a mental image (representation[8]) of the semantic structure of the discourse begins to be formed, in a cumulative process in which it is dynamically changing and developing, and involving ever larger chunks. If a new subtopic appears in the discourse, this process may re-start anew.

This process is facilitated insofar as – in line with multichannel theories of human information processing, theories positing different levels of mental awareness of actions, and models of attention allocation[9] – the internal programs for producing utterances (or syntagms) are formed automatically at the subconscious level, while self-monitoring, or feedback, requires very little attention.

But when difficulties of perception and/or comprehension arise, attention is fully channelled to the challenges to these processes, and feedback is seriously undermined. Poor sound quality or defective diction by the speaker poses a problem by reducing redundancy at the first tier; likewise complicated syntax, or mismatches of grammatical and communicative word order between SL and TL, at the second tier. Unknown words or technical terms, logical lacunas and sense gaps larger than normally inferentially bridgeable by the interpreter, or references to facts unknown to the interpreter, reduce redundancy at the semantic and inferential tiers.

When these problems divert attention from monitoring, or feedback, the interpreter may actually become 'deaf and blind' to her own performance. She

may continue to work without failure; but if failures do occur, she is not aware of them at such moments. Conversely, with sufficient redundancy at every level and tier (what may be called 'ideal conditions') the interpreter's attention may be almost fully focused on monitoring her own style of speaking.

Message probability anticipation and anticipatory synthesis are mutually complementary. The probability anticipation model assumes that perception and comprehension proceed by the identification of information density peaks at various levels. Information peaks have already been discussed in detail above, for example in terms of overt or hidden rhemes and foregrounding devices, at the semantic and inferential levels, and of the S factor at the level of the communicative situation. Thus on the one hand, anticipatory synthesis facilitates perception and comprehension by allowing articulatory programs to be formed meanwhile automatically, and on the other, probability anticipation facilitates speech planning (from the internal semantic to the final articulatory programme) by attuning perception to information density peaks at various levels.

Probability anticipation and anticipatory synthesis are not peculiar to simultaneous interpretation. Both mechanisms are part of our normal perception, comprehension and speech production processes, arising from our general capacity for anticipatory reflection of the outside world. However, in SI these mechanisms become indispensable, determining and enabling this type of human activity. The probability anticipation mechanism has been studied in some detail elsewhere in relation to problems of syntactic structure, in particular, for German-English SI (Wilss 1978) and for German-English and Chinese-English (Setton 1999), and more generally in relation to human speech comprehension, by Sperber and Wilson in Relevance Theory (1986/95: 202–217).[10] The mechanism is easily observed in operation, including instances of failures and distortions, both experimentally and in professional in-conference SI.

Our model assumes the concurrent operation of the probability prediction machinery at several levels at any given moment, with a heuristic interplay of levels from the bottom up and from the top down, as the message is scanned for information density peaks, above all at the sense level.

To illustrate this, if the mechanism were to operate at the level of discourse alone, anticipatory synthesis at the stage of TL discourse production would yield only a very general sense of the discourse as a whole (of the order good/bad, there exists/there does not exist, in favour/against, positively/negatively, etc.). At the level of the utterance alone, it would result in pervasive problems in rendering the rhemes of individual utterances, in other words, the failure of the SI process.

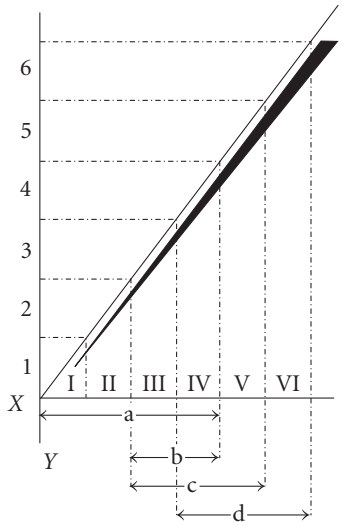


Figure 18. Hypothetical SI results as a function of probability anticipation levels

The reliability of SI communication therefore depends not only on the depth of probability prediction and anticipatory synthesis, but also on the fullest possible involvement of as many concurrent levels as possible. To be effective, the incremental process must operate at the higher levels (meaning and sense), while the probability prediction steps must also be sufficiently discrete.

The diagram in Figure 18 shows the results which would theoretically be obtained if each level were engaged separately, instead of all operating concurrently.

In other words, interpretation performed purely and exclusively at the level indicated by the Roman numeral would produce the result marked by the corresponding Arabic numeral. Roman numerals indicate the projection range (or depth) of the prognosis: (I) for a syllable, (II) for a word, (III) for a phrase (syntagm), (IV) for an utterance, (V) for a discourse, and (VI) for the situational context. Arabic numerals indicate the results that would be obtained in each case:

1. no translation
2. rendering the prosodic features of an unknown word (e.g. an unknown proper name) or unconnected words not forming a coherent utterance, in which any sense would be arrived at purely coincidentally
3. disconnected phrases

4. incomplete rendering of disconnected utterances
5. a mere summary of the message
6. explication of the theme and purpose of the discourse and its underlying motives.

The letters indicate the tier of the prognosis: (a) prosodic, (b) syntactic, (c) semantic, and (d) sense.

It is interesting to note that some of the hypothetical results illustrated in the chart have been experimentally confirmed (willingly or unwillingly!): for levels I and II, for instance, see Benediktov (1974) and Hendrickx (1971) for suggestions about 'interpreting' separate words (and for comments on them, see Seleskovitch 1975), as well as Chernov (1978) for experimental results with the interpretation of isolated words (cf. also Chernov's 1978 undergraduate project experiments with interpretation at levels III and IV). In fact, the cognitive activity performed by conference interpreters in the booth labelled as *transcodage* by D. Seleskovitch and M. Lederer (1986, 1989) is also reflected in the diagram: *transcodage* would produce the results indicated by Arabic numerals 1 through 4, concurrently engaged, to the exclusion of levels V and VI, and tier (d). The result indicated by Arabic numeral 6, taken in isolation, would correspond theoretically to anticipation by a conference participant prior to the speaker's contribution, and simultaneous interpretation thereof.

My model of the complex bilingual communicative verbal activity of SI is based on universal features that characterise human activity in general:

– a three-phase structure (motivation, orientation (analysis and synthesis), and execution)
– specific object and product
– planning and usefulness
– specific conditions
– specific units of activity.

The probability anticipation model recognises and distinguishes general features common to all human activity and features specific to simultaneous interpretation.

– The *motivational* aspect of SI is represented by the existence of the object (or motive), i.e. the semantic structure of the SL discourse.
– The *analytical and synthetic* aspect is represented by the cumulative dynamic analysis and formation of the internal programme for the TL utterance.

– Finally, SI has an obvious *executive* aspect: the production (including articulation) of the TL discourse.

As to specific features, we would like to stress the following:

– They are determined by the extreme conditions of SI: extreme temporal constraints, simultaneity of listening and speaking, the reliance on anticipation in the absence of a complete utterance before the start of SI, and external control over the rate of activity.
– The semantic structure of the discourse is treated in the model as both the object and the product of the activity, although the SL discourse semantic structure and the TL discourse semantic structure are identical only ideally; but this ideal constitutes the motive of SI activity.
– The unique nature of SI as a special type of verbal activity is confirmed by the fact that listening (perception and comprehension) and speaking (production) *share a single executive goal*: TL discourse reproduction.
– The question of 'units' of activity (or acts) and operations in SI deserves special mention. The evidence we have indicates that we cannot regard rendering a phrase (a syntagm) as an 'act of interpreting' in SI (Shiryaev 1979). Looking at our synchronised SI transcripts we can see that there is no linearity in this process, since what Shiryaev calls the sequence of 'acts' is in practice constantly broken. Only a unit of activity that has all the characteristics of the activity in general, but has an intermediate objective (A. A. Leont'ev 1974), can be viewed as a unit or act of SI. Such a unit can be identified in an elementary act of SI communication such as the [SI] rendering of a complete utterance, which counts as an act of mediated communication,[11] expressed formulaically as:

  $$(S \rightarrow)\ H2 \Leftrightarrow S2\ (\rightarrow H3)$$

  in which each S is a speaker (S2 is an interpreter), and each H is a hearer (H2 is an interpreter).

The heuristics of SI are a consequence of the constantly changing conditions in which the successive actions and operations take place.

46. Self-monitoring or feedback

We have claimed that message probability anticipation is a necessary and sufficient mechanism to enable and ensure the process of simultaneous interpreta-

tion. However, SI being a verbal (speech) activity, there are other mechanisms involved, just as in regular monolingual speech. These also play a role in SI, although they are not specific to SI as such. Having adopted a *psycholinguistic* approach to SI, we have already had occasion to mention some psychological mechanisms, including memory (addressed in particular by Gerver 1976), the distribution of attention (Gerver again, and Gile 1995 in the Effort Models in particular), mechanisms regulating levels of awareness of different actions and operations (Shiryaev 1979), Principles of Relevance (Sperber & Wilson 1986/1995), and other speech mechanisms. An important role in SI may also be played by a feedback mechanism, the interpreter's self-monitoring (see pioneering research by D. Gerver 1975).

According to Gerver, instances of self-correction by simultaneous interpreters, observed both in experiments and in professional in-conference SI, are sufficient evidence of the engagement of a feedback mechanism, monitoring both SL perception (and, one assumes, comprehension, or its equivalent, since no machinery for comprehension is shown in Gerver's model) and TL speech production.

Let us quote some examples, borrowed from Gerver (1975), Barik (1975) and our own corpus.

Table 9. Self-correction in professional SI (Barik 1975; Gerver 1975; Chernov 1978)

	SL	**Interpretation with corrections**
(1)	*Sur tous les continents…*	*Especially on the continents → on all the continents*
(2)	*Aussi bornée que cette activité…*	*Just as limited as this… → however limited this activity…*
(3)	*…for psychologists…*	*…pour des psocho → … → psychologues*
(4)	*…in physical education…*	*…dans l'édifis → … → physique → l'éducation physique*
(5)	*…which will be published this month*	*…qui doit sortir d'ici → au cours de ce mois-ci*
(6)	*…for the man is holding…*	*…pour l'homme → car l'homme tient…*
(7)	*…since the adoption of the resolution on the Development Decade…*	*…со времени резолюции…на → …воздействие на страны развития…*
(8)	*…turned its attention to the great problem of…*	(*8a*) *…наше внимание привлекается всё больше и больше к великой проблеме…→ большой проблеме*
(9)		(*8b*) *…большое внимание уделяла великой … → … большой проблеме…*
(10)	*I would like to touch on the problem which…*	*Я хотел бы коснуться вопроса…→ …которая касается…*

There is plenty of evidence of self-correction in observations of in-conference professional interpretation and in experimental materials cited by many authors. Self-correction testifies to the engagement of the feedback mechanism. But the question remains: at what stage of the SI process does this mechanism operate? Theoretically, interpreters might monitor and correct either perception and comprehension, or their internal semantic programme for output, or a mistaken probability anticipation recognised as incorrect, or indeed subsequent stages of production, as in the mechanism of anticipatory synthesis.

In the above examples, in (1), (2), (6), and (7) (it is irrelevant that in (7) one wrong rendition is substituted for another wrong rendition), the interpreter corrects a mistake in the internal programme for the utterance due to a wrong prognosis, while in (3), (4), (5), (8a) and (8b) the corrections are more properly attributed to the production stage.

Self-correction in (3), (4) and (5) may be explained by distortions in the articulatory programme which are noticed by the interpreter:

(3) *ps**o**cho* → *psychologue*	the error may be explained by the regressive impact of the following syllable
(4) *l'éd**ifis*** → *l'**éduca**tion **phys**ique*	the whole articulation programme is distorted
(5) ***d'ici*** → *au cours **de** ce mois-**ci***	correction of syllable contraction, which may occur in very rapid speech

(8a) and (8b) may be explained by the interpreter's realising that the output is at odds with normal TL usage.

Correction can be aborted with the interpreter not explicitly signalling the change in TL as in (9) where a correction is implied by the change in the gender of the *wh*-pronoun which is made to agree not with the TL surface noun *вопрос* (m. 'question, issue'), but with an implied noun of a different gender, *проблема* (f. 'problem'), which is a more accurate rendition of the original.

Barik (1975) quotes also the following example:

In the past thirty or forty tears	*Dans le passé… en et – … – dans les **quarant(é)rieuses** années…*

***'Quarant(é)rieuses** années…* must be '*quar**ante ant**érieures années*'. Here we see that an attempt to make a correction results in syllable contraction and distorted articulation.[12]

Apparently, then, the self-monitoring and self-correction process may apply both to a wrong probability prediction (which is only natural, since

it is only a question of probability), and to various stages of anticipatory synthesis, including the articulatory programme; and the correction may itself be mistaken, or it may be halted (possibly, for lack of time) at an intermediate stage. This fact was noted by Gerver, who suggested that the feedback mechanism might become inoperative in case of difficulties. In addition to the many instances of uncorrected errors and slips in professional interpretation, Gerver also observed, in an experiment on the impact of noise on SI (Gerver 1974b), that the percentage of errors corrected was inversely proportional to the noise level (the worse the noise, the fewer errors corrected).

We assume that Gerver is right in linking self-monitoring performance to the distribution of attention between various actions and operations. With greater perceptual difficulties (whatever their reason may be) perception requires more attention, at the expense of the feedback mechanism.

47. The efficiency of the SI communicative act and the SI invariant

We have tried to show that the semantic structure of discourse is both the object and product of SI activity. It follows that the discourse semantic structure must also be invariant in SI, on the predominant view in translatology that translation must ensure the equivalence of the original and SI texts.[13]

Assuming that SI is an activity which aims to ensure communication among the participants of an international conference, its efficiency will depend on the efficiency of communication between speaker and audience. In that case the criterion of equivalence must be sought in pragmatic socio-psychological factors.[14] But the felicitous and ever-increasing use of SI at international conferences may serve as confirmation of its efficiency.

There is no doubt that success in communication is ensured if the semantic structure of the SL discourse is fully rendered in the TL discourse, with the redundancy of the original message preserved. Doubts about the complete success of communication between speaker and audience arise when the transfer of the semantic structure is seen to be incomplete. But complete transfer is only an ideal and does not occur in real life. In practice the completeness of the transfer is determined by the four formulas of transition from the SL semantic structure to the internal (sense) programme (see Chapter 6, §31), or combinations thereof. Compression in parts of the discourse is possible, as well as partial substitutions of weak rhemes for strong rhemes, and other changes.

In principle, the model discussed shows how the success of communication between the speaker and the audience is achieved even with incomplete transfer of the semantic structure to the TL. In fact, it is not a matter of the completeness of the transfer, but rather its nature. What matters is the attainment of the communicative objective.

The communicative objective of the SI act is attained when the hearer of the TL discourse is able to form a mental picture of the semantic structure of the discourse equivalent to the SL semantic structure. This equivalence depends on whether the information density peaks are preserved at the maximum possible number of levels. But since the overall aim is the transfer of the sense of the message, information should be preserved above all by transferring the rhematic components of the utterances, particularly the main rhemes whose rank is determined by the rank of the topic of the utterance.

However, there is also another requirement for the success of the SI communicative act. Just as the subjective redundancy of the SL discourse for the interpreter plays a major role in her perception, the subjective redundancy of the TL discourse is equally, or almost equally, important for the hearer. This factor will depend on the hearer's cognitive thesaurus, knowledge of the target language, and awareness of the communicative situation. As a rule, apart from knowledge of the language, the hearer has a considerable advantage over the simultaneous interpreter. Whereas the interpreter, with rare exceptions, participates in the procedure solely as a language expert, the receptor of the TL message is an expert in the subject matter discussed as well as having much greater insight into the details of the communicative situation. However, since the hearer's perception and comprehension depend on the same psycholinguistic regularities and ability to access the sense as the interpreter, but the TL discourse is (typically in SI) less redundant than the SL, the overall degree of redundancy for the hearer remains the same or almost the same.

This leads to a seemingly paradoxical conclusion: the success of an SI act depends not only on the interpreter, but also on the audience (the hearer).

The hearer often does not pay attention to grammatical and stylistic deficiencies in the interpreter's speech, as is evidenced by several polls among audiences conducted by researchers (Stenzl 1989: 24). The interpreter is at a disadvantage with respect to a speaker reciting a pre-prepared speech (see Chapter 2 §7), but this is often compensated for by the fact that the interpreter renders this as an oral communication and the hearer of the TL discourse is also listening to the oral discourse produced live and impromptu by the interpreter.

Thus, being slightly more specific, we may say that the SI invariant should be seen in the most informative part of its semantic structure (information density peaks), while the efficiency of the SI communicative act depends not only on the preservation of the invariant, but also on the degree of subjective redundancy of the discourse for the receptor of the TL message, in other words on the degree of her awareness of the communicative situation and her cognitive thesaurus as far as is relevant to the topic of the discourse.

Chapter 11

Anticipation and SI
An experiment

> If the successive units of a message are related, if the probability of a unit depends upon the units that precede it, these relations reduce the amount of information that a single unit can carry [...]. Contextual dependencies mean that the message source is repeating itself [...]. A large degree of interdependence among the successive units of a language means that parts of the message can be lost or distorted without causing a disruption of communication... (Miller 1951: 103)

The synchronised SI transcript in Figure 19 (below) shows a typical pattern of temporal correlation between the SL speech and the interpreters' output.

The extract has been temporally aligned on the basis of tapes recorded in the laboratory (see Chernov 1978).

As discussed in Chapter 2, we have suggested that the psycholinguistic mechanism which makes SI feasible under extreme speech conditions can be described as one of probability anticipation of the development of the message carried by the SL discourse and its anticipatory synthesis by the simultaneous interpreter in TL.[1]

Having stated the hypothesis of message probability anticipation in SI, we proceeded from the tenets of the Theory of Activity in the Russian school of psychology as applied to the activity of the brain in the process of perception (Chapter 6). The gist of the hypothesis was that in the process of listening to the original speech, the interpreter makes assumptions about how the speaker's intention is likely to develop or be completed semantically and verbally. These assumptions are made on the basis of subconscious (subjective) assessments of the likelihood of the semantic message and its verbal realisation unfolding in a certain way.

In 1974 we designed and conducted an experiment to test the hypothesis at the (verbal) level of word combinations, one of the basic levels of message anticipation in SI.

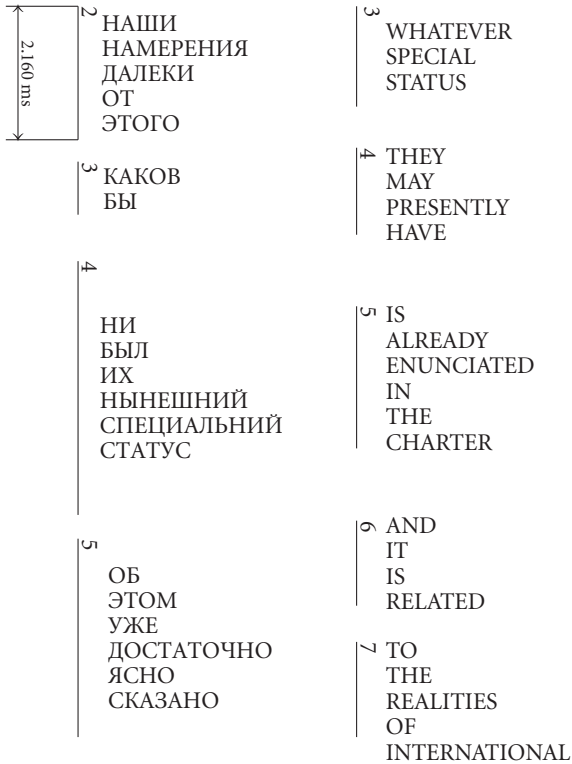


Figure 19. Synchronised transcript of SL (right) and TL (left)

Several texts were prepared to be used as SL speeches, including

1. contributions to the UN general debate by representatives of developing countries, in English, for interpretation into Russian;
2. an adaptation of a text by Eugene Nida as a popular lecture on linguistic problems, in English, for interpretation into Russian;
3. an adaptation of a linguistics text by V. Zvegintsev, to be rendered from Russian into English.

Each text was pre-recorded by a native speaker (students from Asian and African countries, and a British student) as a twenty-minute speech, which roughly corresponds to one turn in the SI booth for an interpreter.

Each text contained test sentences of two kinds. The first series were nonsense sentences of the type '*Colourless green ideas sleep furiously*' (Chomsky 1957), i.e. syntactically well formed but semantically anomalous, with words

that do not fit together. We expected subjects to be unable to build a hypothesis of any meaningful utterance on the basis of the input, resulting in either no interpretation at all or numerous distortions, despite the fact that the test phrases were placed in plausible contexts and did require correct rendering for the discourse as a whole to make sense.

The test sentences of the second type contained a 'prompt' to a high-probability sentence ending, followed by a different and presumably unexpected actual ending. The prediction was that the interpreters would follow the prompted (anticipated) utterance ending, regardless of the actual ending which ensued.

Eleven freelance conference interpreters with conference experience ranging from two to 20 years (including UN meetings) were invited to participate as test subjects. In order to simulate a real conference situation and obtain maximum mobilisation of subjects' abilities, each interpreter was given to understand that she would have difficulties to overcome in competition with 10 other colleagues.

Tables 10 and 11 in Appendix C list the two types of test sentences in the experimental speeches.

Since the two types of test sentence pose different problems, we will consider them separately. Here are two examples of the first (semantically anomalous) type:

(a) The round knife flew squarely inside the bottom of smoke.
(b) Кислая сладость вскрикнула наземь от ожирения.
Sour sweetness cried out (*yelled*) *to earth from obesity*

These sentences are grammatically well-formed in every way, and comprise ordinary English and Russian words. The difficulty lies in the fact that, although such strings can be grammatically parsed, the lexical items in them do not combine to make sense, in violation of the law of semantic agreement (see Chapter 2).

The experimental hypothesis was that rendering these sentences would either be extremely difficult, or utterly impossible.

The results confirmed the experimenters' initial expectations (Zimnyaya & Chernov 1970, 1973), but there were two further unexpected results. First, all the subjects successfully rendered the word combination '*кислая сладость*' ('sour sweetness'). In fact, this word combination should not have been included in the test, for reasons we will explain below, but it gave the experimenters additional meat to sink their teeth into. The point is that '*sour sweet*' as a word combination is sufficiently common (there is *sour-sweet apple* and

Table 12. Complete and partial renderings of nonsense test items in SI (Chernov 1978); numbers from column 2 onwards refer to subjects

Test sentence #	Complete rendering (subjects)	No rendering (subjects)	In the absence of complete rendering, number of meaningful words rendered out of N possible words									First word combination rendered
			N=	8	7	6	5	4	3	2	1	
			Subjects									
1/5	–	4	9:		1,9	5	2,3,7	10	11			–
2/1	–	2,4,10	6:	–	–	–		3,7,8,9,11				9
2/2: a	–	1,2,4,7, 9,10,11	6:	–	–	–			8		3	8
b	–	2,4,8,9,10	6:	–	–	–	3	7		1,11		1,3,7,11
c	7 (12.5%)	2,3,4,10,11	6:	–	–	–		1,8				1,8,9
2/3	11(12.5%)	4	7:	–	–	1	2,3,7	8		10		1,2,3,7,9,10
2/4	–	4,9,10	7:	–	–	–	1,3	2,8		7		1,2,3
3/1: a	3 (12.5%)	1,4	5:	–	–	–			2,7,10,11	9		3,7,9,10,11
b	–	4,9,10	5:	–	–	–	–	1,3	2,11	7		1,2
c	1,7,10 (37.5%)	3,4	5:	–	–	–	–	2,9,11				9,11
3/2	1,2,7,9 (50%)	4	5:	–	–	–	–	10,11	3			
3/3: a	–	4,9,10	7:	–	–	1,2,7,11			3			1,2,7,11
b	7 (12.5%)	4	8:	–		3	11	1,2	9	10		9
3/4	3 (20.0%)	4,9,10	7:	–	–				11			
3/5*	1,2,3,7,10,11	4,9										–
112 TL renderings analysed	10.71%	35.71%	%age of subjects who missed 1 word: 11.61%; 2 words: 20.54%; 3 words: 7.14%; 4 words: 8.04%; 5 words: 4.46%; > 5 words: 1.79%. Total: 53.58%									28.57%

* Not taken into account in the overall result

sour-sweet meat in Jewish cuisine, and *sweet and sour pork* in Chinese cuisine). Besides, 'sour' and 'sweet' both contain the semantic component 'taste', hence the two words have certain combinatory properties, in contrast to pairs like *'wake strongly'*, *'bottom of smoke'*, *'logical armchair'* or *'yellow symposium'* which do not combine since they have no common semantic elements. The percentage of losses in SI was greatest in these latter cases. The overall results are shown in Table 12.

These results show the difficulties the interpreters had with nonsense sentences, while the interpretation of the surrounding passages was normal and fluent.

112 renderings of the 14 test sentences were analysed. 35% of test sentence occurrences were missed by the interpreters completely. 54% were interpreted in part and/or with serious distortions. Only 11% were fully rendered. Sentence 3/5, *угрюмый дождь скосил глаза* (literally: *morose/sulky/cheerless – rain – looked asquint / looked awry*) was excluded from the analysis, because it was borrowed from a poem by Vladimir Mayakovsky, and is a metaphor (although quoted out of context).

The interpretations of these experimental passages contained a great many hesitation pauses, errors and omissions. Here are some typical renderings of segment 3/1 with test items a, b and c:

Original (SL):	Ниже приводятся фразы: КИСЛАЯ СЛАДОСТЬ ВСКРИКНУЛА НАЗЕМЬ ОТ ОЖИРЕНИЯ. ПРОХОДНОЙ БУКЕТ ВЫТЕК С ХОЛОДНЫМ ШУМОМ. КРУГЛЫЙ КВАДРАТ ПОЛЯ ЛЕТЯ ПОД ПОЛОМ.
Literal translation:	'sour sweetness cried out to earth from obesity' 'passing bouquet flowed out with cold noise' 'round square [of] floor flying under [the] floor'
Subject no. 3	*The following sentence: 'The sour sweet… eh… jumped down to earth from fat the… eh… flower… bunch went… banged, banged the door…'*
Subject no. 7	*The following speeches: 'The sweet sour… screamed fro… the cold… the flowers… the square circle of the floor flowing… flying under the floor…'*
Subject no. 2	*Now we're given some sentences: 'The sour s-s-s eh-eh-eh… in e-exclaimed… The passing bouquet flowed out of with the… eh-eh… the… square… sex flowed beneath…'*

Subject no. 9	*. . . if you take the. . . take the phrase 'The. . . sour. . . sweetness. . . The square. . . the round. . . square of the floor. . . flying above the floor. . .'*
Subject no. 1	*Here are some examples. . . I missed that. . . '. . . a passing bouquet flowed out with noise. . . A round circle of sex. . . eh. . . flying under the floor'*

Interestingly, in several cases the interpreter introduced more sense into the utterance than was contained in the original:

TL:	**SL:**
jumped down to earth	*cried out* to earth
screamed *from. . . the cold*	cried out *from obesity*
flowed beneath	*flying* under..
flying *above* the floor	flying *under. . .*
flowed out with noise	flowed out with *cold* noise

The aligned transcript in Figure 20 shows interpreter 3's rendition. The diagram represents a 22.5 second segment, of which the interpreter devotes 8 seconds (8,000) ms to rendering the two test sentences she attempts, i.e. 600 ms per syllable (given an average syllable duration of 200 ms[2]).

The diagonal dotted lines show the lag or ear-voice span (EVS) between SL and TL at various points. We can see how this lag increases over the passages containing the test items, from 2.5 to 3 seconds at the beginning of each passage to 6 seconds towards the end, then returning to normal immediately after the control passage and even narrowing to as little as 0.5 seconds.

Note that in the remaining sentences of the nonsense type, the structural form of the sentence is easier to perceive and comprehend, so that it is the abstract categorial (or syntactic) component which provides the basis for comprehension.[3]

Most of test sentence 2/1 can be perceived as a syntactic model, or abstract formula:

2/1 *the ugly beauty rattled up to the top of the sour valley*
the [Adj] beauty rattled up to the top of the [Adj][Noun].

'*Ugly beauty*' can be made sense of insofar as both words contain the rather abstract semantic component of 'outward appearance'. This word combination can therefore be understood as an intentional paradox used by the speaker to stress the hideous nature of the beauty in question.[4]

The verb *rattle* signifies movement with noise (as in 'a rattling carriage'). In our example it is even followed by an indication of the direction of movement

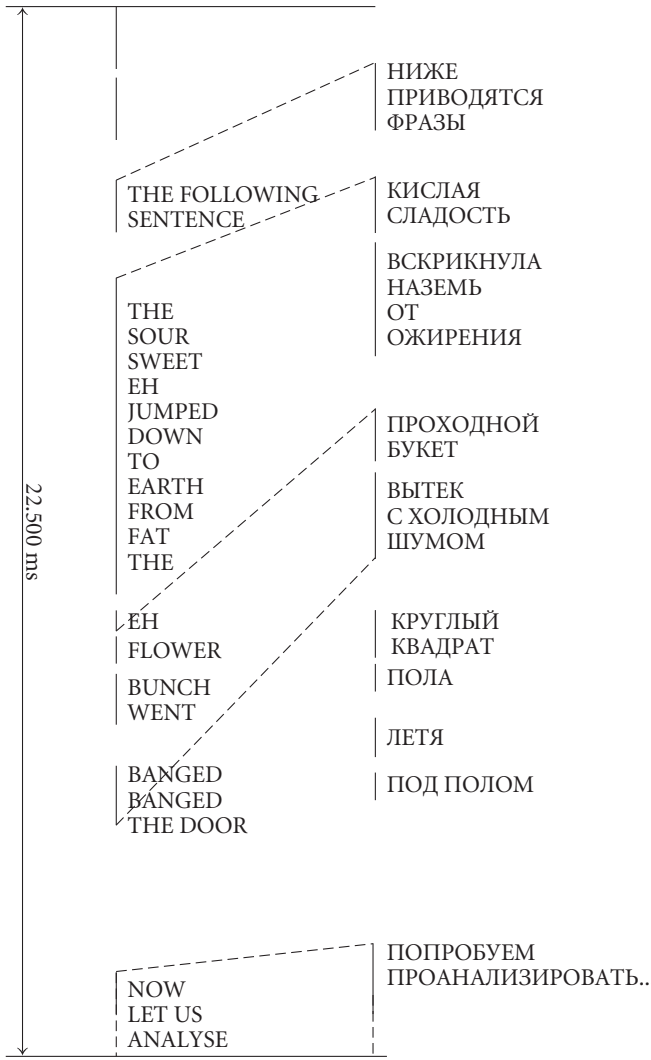


Figure 20. Synchronised transcript of nonsense input (Russian, right) and simultaneous interpretation (left) (Chernov 1978)

(*up*); but the subsequent word combinations – *top of the valley*, *sour valley* – remain completely meaningless.

This test sentence, like the next one, 2/2b, is built around a verb which one would normally expect to be surrounded by all its arguments (both obligatory and optional).

2/2 b. *The square circle walked readily along the steamy beast*
The [*Adj*][*Noun*] *walked* [*Adv*] *along the* [*Adj*][*Noun*]

In this example only the syntactic formula frame remains predictable. The *steamy beast* combination is improbable, except possibly in a fairy tale about a fire-breathing dragon, or perhaps as a rather emotional description by a contemporary witness of George Stephenson's "Rocket" locomotive… The two words making up the phrase *square circle* share the abstract semantic component of 'geometrical form'.

In this case we might therefore expect equivalents of the first two words to be produced, or at least an abstract 'skeleton' of a sentence devoid of lexical meaning. In fact, the first word combination was translated by four subjects, who suggested at least some verbal equivalents for the test sentence.

As our examples demonstrate, the degree of meaningful comprehension (or at least 'comprehensibility') of the test sentences depends on semantic redundancy, i.e. the availability of iterative semantic components in the words of the sentence. A word combination may belong to one of the following three categories:

a. it may 'make sense', when there is iteration of lexical components in the meanings of juxtaposed words;
b. it may 'make some sense', or 'make little sense' with insufficient iteration of semantic components in cases when they are of a very abstract (categorial) nature;
c. it may be meaningless, when the words 'do not combine' (do not contain any semantic components that 'combine').

Now let us look at the results of our experiment from the point of view of the degree of 'sense-making' in word combinations offered for interpretation. We begin by classifying the constituent phrases of each test sentence according to the extent to which they can be construed to 'make sense' on this basis: (1) when the word combination is possible; (2) when it can make sense in certain conditions; and (3) for a combination which is practically meaningless. The first sentence, 3/1a, has already been discussed above:

3/1 a.	*Кислая*	*сладость*	*вскрикнула*	*наземь*		*от*	*ожирения.*
	sour	sweetness	cried out	to the ground		from	obesity

1 Possible sense	2 Sense in certain conditions	3 Nonsense
	кислая сладость sour sweetness	*сладость вскрикнула* sweetness cried out
		вскрикнула наземь cried out to the ground
		вскрикнула от ожирения cried out from obesity

3/1 b. *Проходной* *букет*
passing/running/throwaway bouquet/bunch of flowers
вытек
[did] flux/ensue/leak away(out)/ooze/ /spring/spurtle/stream/
flow out/spill over…
с *холодным* *шумом.*
with cold noise

1 Possible sense	2 Sense in certain conditions	3 Nonsense
вытек с. . . шумом flowed . . . with noise	*с холодным шумом* with cold noise	*проходной букет* passing. . .. bouquet
		букет вытек the bouquet flowed out

In 3/1b, the first word combination *вытек с. . . шумом* ('flowed . . . with noise', which we said 'makes possible sense') was rendered by 3 out of 10 subjects, while the second was not rendered by anyone, although it might suggest some out-of-the-way poetic metaphor; but the last two, though classed as completely meaningless, were 'rendered' by two and four subjects, respectively. However, we must remember that this was the second test sentence in a series, so subjects had already had to render one nonsense sentence. For purposes of comparison: when 3/1b was presented on its own embedded in another segment (as 3/2), the same four word combinations were rendered by 80%, 50%, 40%, and 70% of subjects respectively.

3/1 c. *Круглый* *квадрат* *пола* *летел* *под* *полом*
round square [of the] floor/sex flew under [the] floor

1 Possible sense	2 Sense in certain conditions	3 Meaningless
квадрат пола (70%) square of the floor	*круглый* квадрат (60%) round square	
	квадрат летел (80%) the square flew	
	летел под полом (50%) flew under the floor	

In 3/1c, the first word combination is admissible as a description of the shape of the floor, and was rendered in 70% of cases, the second best result after the subject-predicate combination *квадрат летел* 'the square was flying' (80%), a word combination which is bizarre but still conceivable, for example in a story about UFOs. A *square,* being an abstract geometric figure, may at the same time be thought of as a material object. Its combination with the verb *to fly,* which denotes an action typical of material objects, including living beings, introduces into the semantic structure of the verb the semantic component of 'material object', or a material object whose distinguishing feature is its shape. There is also the mathematical notion of 'squaring the circle'. The word combination *fly under the floor* is not impossible, and could apply to a bat or an insect. *Fly under* is also semantically acceptable: the verb is conceptualised in relation to space, denoting movement in space rather than on a surface, and therefore combines well with a spatial preposition.

To be sure, each act of comprehending such combinations requires an additional mental effort and, consequently, more time. Comprehension of such material in the process of SI can not realistically be expected, but it still potentially leaves some possibility of producing a rendition.

The subjects' performance on 3/5, *Угрюмый дождь скосил глаза* ('morose/sulky/cheerless – rain – looked asquint / looked awry'), is interesting. As we saw, this is a quote from Mayakovsky, and though presented out of context, is a valid poetic metaphor where the seme of humanness is grafted onto the semantic structure of the word *rain*. Further, *угрюмый дождь* (gloomy rain) then easily combines with the verbal phrase *скосил глаза* (looked awry) where the same seme is present. Naturally, the level of semantic redundancy remains quite low, as is usually the case with poetry. As the experiment demonstrated, this hurdle can be overcome by a simultaneous interpreter: 75% of subjects rendered the sentence at the level of 'making sense' (if not style). This was the highest percentage for test items of this type. We also assume that correct perception of 3/5 was facilitated by its rhythmic organisation, an indication of its poetic nature.[5]

Table 13. Interpreter responses to unexpected sentence endings ('false prompts'/ semantic garden path sentences)

Test phrase #	Interpreters		
	Correctly rendered	Rendition followed prompt (garden-pathed)	No rendering
1/1 (English to Russian)	4, 8, 9, 10	1, 2, 7, 11	–
1/2 (")	–	7, 9, 10, 11	1, 2, 3, 4, 8
1/3 (")	1, 2, 10	7	3, 4, 8, 9, 11
1/4 (")	–	–	1,2,3,4,7,8,9,10,11
1/6 (")	4, 7, 8, 9, 10, 11	3	1, 2
1/7 (")	–	1, 4, 7, 9, 11	2, 3, 8, 10
1/4 (Russian to English)	2, 4, 10	–	1, 11
3/6 (")	7, 11	1, 2, 3, 4, 9, 10	–
3/7 (")	–	1, 2, 3, 7, 10, 11	4
3/8 (")	11	1, 2, 3	4, 7, 10

Thus this part of the experiment fully confirmed our initial hypothesis, and brought us several additional insights into the SI mechanism. The experiment also confirmed the supposition that the interpreter can follow the 'prompted assumption' without noticing that it does not correspond to the actual development of the utterance. Table 13 shows the results of rendering test sentences containing 'prompted assumptions'.

Let us discuss these results.

1. The high proportion of correct renderings for the test items in 1/1 (50%) and 1/2 (6 out of 9) can be explained as follows. Test sentence 1/1

> '...and most recently the Report submitted by THE SECRETARY-GENERAL OF THE UNCTAD on the implementation...'

contained a false expectation of only a single word. In 1/6, the speaker made an error by stressing the key word in the test sentence.

2. The table shows different results for interpretation from or into the native ('A') language. All subjects but one had Russian as an A language, and English B, so they were interpreting the English test sentences (1/1 to 1/7) from B into A. Most failed to render the test items at all in these sentences, whereas most of their renderings from A into B (Russian into English) followed the false prompt. This may suggest that message development probability anticipation

is stronger in the A into B combination than vice versa, even in a highly skilled interpreter.

This was confirmed by the results for the only English A interpreter, no.7, who was interpreting these English sentences from A into B: she was misled into following the prompt in four out of five of them (see table), whereas when interpreting from Russian into English (A to B) she follows the 'prompt' only once. We can compare these results with the performance of interpreters 1, 2, and 3. Working from B into A (English into Russian), Interpreter 1 follows the 'prompt' twice and Interpreters 2 and 3 once each, whereas when working from A into B (Russian into English), all three follow the 'prompt' [*or* are garden-pathed] three times out of four.

3. Test sentence 3/6 contained a deviation from the title of Lenin's well-known work "Better Less But Better".

3/6	*В популярной*	*телевизионной*	*передаче…*	*недавно*	*прозвучала*
	In a popular	television	show…	recently	was heard
	фраза:				
	the phrase:				
	'*Лучше меньше, да 'Луч*'…				
	'better less, but *luch*'				

'luch' meaning 'a ray of light' as well as being the first syllable of the Russian word for *better* ('*лучше*'). In translating test phrases like this one, the interpreter, when listening to the speaker, is [apparently] only looking to confirm her own assumption concerning the next word, her perception being based on certain critical points in the discourse without any profound analysis of the acoustic signal. In the sentence just quoted (Table 14), the interpreters compared their own most likely assumption involving the word *лучше* (bet-

Table 14. Anticipation in interpretation of a sentence with a misleading prompt

Original (SL):	*В популярной телевизионной передаче. . . недавно прозвучала фраза: 'Лучше меньше, да 'ЛУЧ'…'*
Literal translation:	'in a popular television show … recently was heard the phrase: 'better less, but *luch*'
Subject no. 9	*In a recent… in a recent television… programme, television show… the phrase 'Better… fewer… better fewer than… better fewer… eh… than better…'*
Subject no. 1	*In a popular television programme… a Soviet programme, we heard the phrase recently: 'Better less but better'*

Table 15. Anticipation in interpretation of a sentence with a misleading prompt (continued)

Original (SL):	*Возьмем другой пример: 'Декабрь, январь, февраль – самые суровые месяцы года: март, апрель, май – месяцы весны, тепла, но, правда, нет непостоянного настроения; июнь и Юлина пятерка зато всегда создавали хорошее настроение'…*
Literal translation:	'let[us] take another example: 'December, January, February – the most severe months [of the] year; March, April, May – [the] months [of the] spring, warmth, but, true, [there is) not unconstant mood; June and Julie's first always created [a] good mood'
Subject no. 3	Let's take another example: December, January, February… are the most eh … severe months… in a year…, March, May, April are the months of spring… and warmth…, but of varying mood… June, July and the fifth, but they always created good mood.
Subject no. 7	For instance: December, January, February… are the most severe months of the year… March, April, May… are the spring months… the months of warmth… but of not constant emotions… June and July have always been months of good moods…
Subject no. 11	Let's take another example: December, January, February… are the sternest months of the year; May, April and May are the months of spring and warmth… June… eh… July have always been congenial to a happy mood…

ter) with the first syllable of the speaker's word, disregarding the fact that the second syllable was missing. In our experiment, in 75% of all analysable cases the interpreters followed their own 'hypothesis' as to the future development and completion of the utterance on the basis of high verbal and semantic probabilities.

Another example is given in Table 15.

Before the words *June, July,* the interpreters' hesitation pauses become increasingly long. Apparently, they realise that they have made an erroneous assumption, but are no longer able to restore the original: the interpretations follow the initial hypothesis that the sequence of the months will continue.

These experimental results – the 'negative', in the form of interruptions in the SI process, and the 'positive', in the form of following the misleading prompt – lead us to the conclusion that the mechanism of message development probability anticipation operates both at the verbal and the semantic level.

Chapter 12

Conclusion

In the successive chapters of this book I have set out to build a cumulative picture of the necessary and sufficient conditions (the objective and subjective redundancy of a discourse) which allow a simultaneous interpreter to perceive and comprehend the SL message in the extreme environment of this activity. I advanced the hypothesis that the psycholinguistic mechanism which makes SI possible is message development probability anticipation, and on the basis of empirical (both experimental and observational) materials and their analysis I have tried to present a sustainable and comprehensive picture of the processes and mechanisms involved in simultaneous interpretation.

I believe that this analysis may be usefully applied to the training of interpreters. It is clear that to be productive, training methods should aim to increase the capacity for probability anticipation by increasing the subjective redundancy of the message for the simultaneous interpreter. Training programs should also aim at developing the linguistic skills needed to ensure the required automatisms in the use of the target language.

Because of the important role played by the interpreter's cognitive thesaurus (both overall educational background and knowledge of the specific subject matter), the trainee interpreter should acquire the habit of independently preparing herself for a conference on any topic, to rapidly retrieve the necessary basic documentation on the subject at hand, and the skill of making an optimal selection of background material from the heaps of human knowledge in any field.

The extreme speech processing conditions of simultaneous interpretation also require an interpreter to be highly proficient and familiar with prevailing usage in her active (A and B) languages. Since a simultaneous interpreter cannot look up equivalents while engaged in interpreting, she must constantly do linguistic 'homework' on word collocations, e.g. political and economic clichés. It is important for simultaneous interpreters to be familiar with both the mostly widely used national varieties of the SL language but also with the less common variants used in international communication – for example, British, American, or Australian English as well as English of the Indian sub-

continent; French of France, Canada, Haiti, and the French-speaking African countries; and Spanish as spoken in Spain, Cuba, or Argentina, to mention just a few.

As to simultaneous interpretation skills proper, their development requires a great deal of training, especially in mastering the ability to paraphrase or express the same idea in several synonymous ways. However, these are all issues for training courses in specific SI language combinations.

Our analysis has led us to the following conclusions. Simultaneous interpretation is a specific type of professional interlingual activity performed in extreme linguistic and psychological conditions, in an environment hostile to the simultaneous interpreter. Certain conditions (felicity conditions, to use a term familiar to pragmaticists) are necessary for the success of this activity. Foremost among these conditions are the objective semantic discourse redundancy of the SL message and its subjective sense redundancy for the interpreter. While the former is ensured by the iteration and interdependence of discourse components at all the speech levels (syllable, word, phrase, syntagm, utterance, discourse, situation of communication), the latter – the subjective redundancy of the message – requires sufficient conditions for inferencing (cognitive, pragmatic, contextual, situational).

We have also examined the possibilities and limits in the use of compression with respect to the thematic (topical) component of the discourse, and concluded that the preservation of the rhematic component (informational density peaks at all levels) is a necessary and sufficient invariant that determines the success of the SI act.

Notes

Chapter 1

1. D. Seleskovitch (1978) sees a substantial common denominator between the processes of (written) translation and (oral) interpretation, as reflected in the German term *Translation* proposed by O. Kade (1971) to embrace both activities (*Übersetzen* and *Dolmetschen*).

2. *Editors' note*: In the Soviet Union, unlike the West, psycholinguistics developed in close liaison with communication theory.

3. *Editors' note*: Vygotski and Leont'ev talk about two aspects of the activity of speech: communicative and metalinguistic.

4. *Editors' note*: in Chernov's theory these terms have specific technical values which are explained in later chapters.

5. In the Relevance Theory scheme, entities-properties-relations [epr]. *Editors' note*: This terminology is not in fact employed in Relevance theory writing. It is used by Setton (1999) as a rough-and-ready and fairly traditional analysis of the semantic components of the propositional core of utterances (see Chapter 4, Note 10).

6. *Editors' note*: for consistency, feminine gender is used throughout for interpreters and hearers, masculine for speakers (a convention adopted on demographic grounds by Setton 1999, modifying the convention in relevance-theoretic writing, where speakers are female and hearers male).

7. This receives empirical support from research conducted by I. Rozov, A. Spektor and E. Kramarenko at the Maurice Thorez Institute of Foreign Languages in 1976 under our supervision, in which political texts were cut into separate sentences which were printed on cards, shuffled and put together again in a random sequence. It was found that interpreters performed in a qualitatively different way when rendering a discourse and translating a sequence of disjointed utterances on the same topic, and that SI of separate sentences failed for all practical purposes. Kramarenko also showed that the presence of such characteristics as thematic unity and cohesion of discourse is a more 'powerful' factor favouring successful SI than the presence of political clichés in disjointed utterances.

8. Relevance Theory, a psychological account of cognition and communication which has gained ground since its first formulation in 1986 (Sperber & Wilson 1986/1995), offers several principles of sufficient explanatory force to be used in SI research, as has been very well shown by Robin Setton (Setton 1999).

Chapter 2

1. *Editors' note*: it is not clear which studies Chernov is referring to in this passage.

2. According to Lindsay and Norman (1972/1974: 148), full perception using all contextual information must lag behind the receipt of the sensory information received by perceptual systems, and the lag between the incoming sensory information and the final interpretation of the message plays an important role in perceptual analysis.

3. *Editors' note*: this is probably no longer true of most training programs, where a clear distinction is now usually made between exercises from spontaneous (though sometimes recorded) delivery and 'SI with text' as a different exercise for which the text is usually provided.

4. According to Relevance Theory, 'the presumption is that, of all the stimuli that are available to her and acceptable as a means of achieving her particular communicative goal, the communicator will choose one that is as relevant as possible to the addressee [. . .] the ostensive stimulus is the most relevant one compatible with the communicator's abilities and preferences' (Sperber & Wilson 1995: 270).

Chapter 3

1. Nomination: giving a name to a thing, an entity, a person, a property, a relation, etc.; cf. also Lyons (1977: 217).

2. Cf. op. cit.: 181–182.

3. Cf.: 'When ambiguous sentences occur in ordinary conversation, the context nearly always determines which meaning the speaker intended, so the fact that the same sentence could have been used with a different meaning in a different context is irrelevant and usually unnoticed' (Miller 1981: 131). Again, 'the time to think up a completion of a stimulus sentence fragment is increased by ambiguity in the fragment only when the fragment is an incomplete clause [. . .] The fact that a sequence is ambiguous is irrelevant once a clause boundary is passed, since one of the two meanings is already decided on' (Bever 1972: 106). 'Words are polysemantic only in the vocabulary; in paradigmatics, while in a linear sequence, syntagmatic links eliminate the polysemy of the verbal sign' (Lyons 1977: 400).
Editors' note: Seleskovitch (1975) also insists that polysemy and ambiguity are properties of the language system (*langue*) and almost entirely disappear in situated discourse.

4. *Editors' note*: we assume that 'language system' refers here to that aspect of the word's meaning which is derived from its place in a system of relationships which it contracts with other words in the vocabulary. Although this terminology is not widely used, to avoid ambiguity we prefer not to substitute the term 'sense', which Lyons, for example, uses for this dimension of meaning, covering grammatical meaning and paradigmatic and syntagmatic relations. 'Denotation' appears to correspond to what is standardly described in semantics

textbooks as referential meaning, while 'conceptual' meaning seems to correspond to signification in Frege's sense.

5. Sainz de Robles and Federico Carlos (1967). *Ensayo de un diccionario español de sinónimos y antónimos* (8 ed.). Madrid: Aguilar.

6. Moliner, Maria (1977). *Diccionario de uso del español* (2nd ed. 1998). Madrid: Gredos.

7. The primacy of the minimal elements of meaning in semantics was assumed in principle by linguists very early in the game. In the early thirties George K. Zipf (1965) wrote about 'the genes of meaning' as 'a bundle of semantic features [. . .] if a particular bundle occurs frequently in the cognitive life of a community, they will assign to it some phonological representation, or 'word'. If it occurs infrequently, no word will be available, so the bundle will have to be made up as needed from strings of words arranged in phrases'.

8. *Editors' note*: componential or feature analysis is now strongly challenged by cognitive and frame semantics (e.g. Fillmore 1982; Lakoff 1987): see Note 10 below.

9. Frame and script semantics suggest that semes may be linked together by association.

10. Arutyunova, when indicating the interrelation between syntactic links and the meaning of nouns as the terms of those relations, stresses that the spatio-object concepts and their development into object relations, on the one hand, and factual-temporal concepts and their development into logical relations, on the other, are in agreement (Arutyunova 1976).

11. Henceforth we will be introducing terminology from Relevance Theory which seems useful for understanding of the psycholinguistic mechanisms of SI. In RT, communication is described as 'ostensive-inferential', since it depends on 'ostension' on the part of a communicator and decoding and inference on the part of a receiver. 'Ostensive' behaviour makes manifest an intention to make something manifest (Sperber & Wilson 1995: 49).

12. Words with a valency of one to three predominate in Russian.

13. *Editors' note*: it is not clear whether this is the same as *grammatical government* mentioned earlier.

14. *Editors' note*: this sentence appears to concern *semantic* government.

15. Semantic agreement is oriented both progressively and regressively.

Chapter 4

1. *Editors' note*: In the terminology of the Prague school, 'actual' parsing (*aktual'noe chlenenija izrechenija*) means functional parsing, i.e. analysis into theme and rheme components, otherwise also known as Functional Sentence Perspective.

2. Cf. Katznelson: ' [. . .] in a neutral utterance not deformed by special factors the subject is in fact the theme. If we still have to distinguish between these two concepts it is only because in certain conditions the form of the subject is fully 'de-thematized', or acquires the meaning of a secondary theme, while the role of the major theme is played by the word that is not couched in the form of a subject. . . ' (Katznelson 1972: 189). Similarly, according to Arutyunova: ' the determining contrast is between the opposing functions of reference

to the topic of the utterance and to the expression of what is being communicated [...], which corresponds to two pairs of notions: subject and predicate, theme and rheme [...] The second pair of notions belongs to the realm of topicalisation and reflects the structure of the utterance, i.e. it belongs to the communicative plane proper' (Arutyunova 1999: 5). Russian-speaking readers are also referred to the entire section '*On The Logical, Grammatical and Communicative Structure of the Utterance*' in Arutyunova (1999: 5–11).

3. *Editors' note*: in contemporary functional linguistics, theme and rheme are usually described as components of 'information structure'.

4. *Editors' note*: in classic functional theory, the rheme introduces new information, and the sense is generated by rheme and theme in combination. A formulation more consistent with Chernov's exposition would be that the rheme introduces the 'operational' part of the utterance, in contrast to the theme which prepares the ground.

5. *Editors' note*: See Chapter 5, Note 7. Chernov uses the term 'pragmatic' throughout in the restricted sense of 'sociopragmatic'.

6. Cf. Jerry A. Fodor's postulates of belief-desire psychology (Fodor 1983, 1987/1998, 1990/1992). *Editors' note*: contemporary analysis might assign 'desirability' to the marking of attitudes, Chernov's next level of semantic structure, rather than to modality.

7. 'Statements deprived of their modus and their incomplete nominalisations in other utterances are correlated with the word *fact*' (Arutyunova 1999: 488).

8. Some linguists believe that evaluation as 'good' is the norm, and submit linguistic evidence in support of that view (see for example Arutyunova 1999: 181–182).

9. We should not forget here the semantic law according to which everything expressible in categorial semantics may also be expressed in lexical semantics, but not vice versa (see Chapter 3).

10. The ideas expounded in this paragraph could have been rewritten using the more contemporary terms of Relevance Theory, or Setton (1999)'s composite <epr> (= entities–properties–relations). Nevertheless, we decided to leave this section more or less in its original form to show that it is not after all the terminology that matters in scientific descriptions, but the content.

11. Compare the grounds for asserting equivalent linguistic function for these forms:

> English: 'The parties shall refrain from...'
> Russian: 'Стороны воздерживаются от...' ['the parties refrain from ...']

Chapter 5

1. According to Relevance Theory, 'When [...] interconnected new and old items of information are used together as premises in an inference process, further new information can be derived: information which could not have been inferred without this combination of old and new premises. When the processing of new information gives rise to such a

multiplication effect, we call it *relevant*. The greater the multiplication effect, the greater the relevance' (Sperber & Wilson 1986/1995: 48).

2. See §31 on Yuri Shreider's proposals regarding 'semantic information.'

3. The process of human speech comprehension has been extensively discussed in the literature practically throughout the second half of the 20th century by philosophers, philosophers of language, psychologists, psycholinguists, neurophysiologists, etc. Of particular interest and relevance to our model are the work of Jerry Fodor, and of Dan Sperber and Deirdre Wilson (Relevance Theory).

4. *Editors' note:* On Chernov's use of the term 'pragmatic', see Chapter 4, Note 5 and Chernov's own Note 7 below.

5. *Editors' note:* the 'direct' and 'indirect' meanings which Chernov contrasts here may correspond to Searle's 'sentence meaning' (propositional content) and 'speaker meaning'.

6. For example, the academic *Diccionario de la Lengua Española* (Madrid), the *Diccionario Enciclopédico Ilustrado* published by Sopena Editorial (Barcelona), or the *Diccionario de Uso del Español* by Maria Moliner (Madrid).

7. We use the term *pragmatic* in its narrow original meaning as pertaining to relations between the linguistic sign and the two users thereof (the speaker and the hearer) not in today's understanding as 'how utterances have meanings in situations' (Leech 1983: 6).

8. Compare the relevance-theoretic position on the role of inferencing:

> 'We maintain [...] that there are at least two different modes of communication: the coding–decoding mode and the inferential mode [...] Verbal communication is a complex form of communication. Linguistic coding and decoding is involved, but the linguistic meaning of an uttered sentence falls short of encoding what the speaker means: it simply helps the audience infer what [s]he means. The output of decoding is correctly treated by the audience as a piece of evidence about the communicator's intentions. In other words, a coding–decoding process is subservient to a Gricean inferential process'. (Sperber & Wilson 1995: 27)

9. *Editors' note*: Chernov appears to use this term to designate a set of text elements which can objectively be treated as forming a discourse even if they originate from different speakers, on the grounds that they share thematic or other elements. A similar notion has been discussed in the literature under the heading 'intertextuality' or 'hypertext'.

10. A colour TV channel was used to transmit the picture of the speaker at the rostrum in Buenos Aires to the TV monitor installed in front of SI booths in New York.

11. *Editors' note*: this is sometimes referred to in the linguistics literature as '*realis/irrealis*'.

Chapter 6

1. P. K. Anokhin points out in his *Biology and Neurophysiology of the Conditioned Reflex* (Anokhin 1968: 13) that the concept of 'anticipatory' activity was put forth by Ivan Pavlov as early as 1903: 'The third characteristic and dynamic feature of the conditioned reflex lies in

its *signalling nature*. It develops, as Pavlov puts it, as a 'forewarning' activity, i.e. the activity anticipating the course of sequentially developing events in the outside world. In fact, the saliva excreted in reply to the conditioning stimulus of the ringing of a bell does not appear in order to 'digest' the ringing bell. It only prepares the conditions for digesting the bread in anticipation of its subsequent appearance. It was precisely on the basis of this characteristic and dynamic feature that Pavlov defined the 'principle of signalling' as a basic principle, regulating the adaptation value of the conditioned reflex [...] But what is the essence of signalling? We know that to signal means to forewarn somebody about something that lies ahead. It is exactly in this sense that Pavlov himself formulated the principle of signalling.' (op. cit.: 13).

2. See, for example Beaugrande and Dressler (1981/1986: 140–141).

3. The syntagm will be defined as a word combination pronounced as one unit and having sense. It is actually the smallest unit of sense.
Editors' note: Syntagm (or syntagma) is a syntactic string comprised of a set of words or phrases that forms a part of a larger syntactic unit. Soviet linguistics considered the syntagma the unit of syntactic analysis. Current mainstream theories originating in the English-speaking world (e.g. Generative Grammar, Minimalism, HPSG) do not use this notion, working instead at phrasal and clausal levels. A more controversial aspect of Chernov's definition, however, is the apparent conflation of semantic and prosodic characteristics ('pronounced as one unit'); see Note 5 below.

4. 'Smaller units such as phonemes lack invariance...' (Massaro 1978: 306).

5. *Editors' note*: here Chernov appears to follow (or anticipate) Halliday's identification of an intonational unit (or tone group) in speech with a sense group or semantic unit (e.g. Halliday 1985), which has been rather controversial (see e.g. Brown & Yule 1983: 156ff.; Cruttenden 1986).

6. *Editors' note*: the analysis here is reminiscent of Van Dijk and Kintsch's early model of text comprehension (Kintsch & van Dijk 1978; van Dijk & Kintsch 1983), involving reduction to macropropositions and elimination of secondary propositions, but constrained by on-line working memory.

7. *Editors' note*: for more recent treatments of inference in discourse processing, particularly bridging inferences, see Sanford and Garrod (1981), and in a relevance theory framework, Matsui (1998).

Chapter 7

1. *The Annotated Alice*. With an introduction and notes by Martin Gardner. NY, 1960: 162–163.

2. *The Cat in the Hat* by Dr. Seuss (1996). Ted Smart Publications, 1–6.

3. = la cooperación técnica entre los países en desarrollo

4. = technical cooperation between the developing countries.

5. An input speed of 120 words per minute, reputed to be the most comfortable for SI, is strictly speaking applicable only to a language like English where two- or three-syllable words predominate; it may, with certain reservations, also be applicable to French, but definitely not to Russian, German, or Spanish whose words contain many more syllables due to inflections.

6. *Editors' note*: these contractions would only seem to be 'equivalent' when the content of the contracted *that*-clause is communicatively redundant by dint of being trivially inferable by hearers, which in many cases would amount to the 'situational compression' described later in the chapter.

7. *Editors' note*: this phenomenon, whereby hypotactic structure in the original discourse is rendered in relatively shallow, paratactic structures in the output, has also been called 'paratactic flattening' (Setton 1999: 238–239).

8. Oxford Dictionary of Current Idiomatic English, Vol. 1. 1975. Oxford: Oxford University Press.

Chapter 8

1. A. N. Leont'ev defines sense as the relation of the (hidden) motive of one's activity to the (openly proclaimed) purpose of the action:

> 'Specific conscious psychological sense appears in the mind of a human being through an objective relation between something that urges one to act and something to which one's action is directed [. . .]. We must emphasize here that sense is to be understood not as a mental representation of a need but as that objective entity in which this need is expressed under certain conditions, which makes it objective and directs the activity to the attainment of a specific result. [. . .] Sense is always the sense of something. 'Pure' sense does not exist. Therefore, sense, after a fashion, belongs to the content that is found in one's awareness and seems to be part of the meaning. [. . .] Sense springs not from meaning but from life itself'. (Leont'ev 1975: 278–279)

2. Various types of discourses are analysed in a popular book on SI by Roderick Jones, *Conference Interpreting Explained* (Jones 1998: 16–17). Speeches may be narrative, descriptive, polemical, rhetorical, as well as presenting a reasoned, logical argument, to mention but a few of his categories, although perhaps these are the most important types from the point of view of a simultaneous interpreter.

3. Cf. Sapir (1994); Osgood, Suci, and Tannenbaum (1971); and Arutyunova (1999).

Chapter 9

1. *Editors' note:* In Chernov's underlying model of speech production, articulation requires the prior formation of a multilevel internal (mental) programme, which involves a representation of the syntactic structure of the utterance.

2. *Editors' note*: see Chapter 6, Notes 3 and 5.

3. According to Zhinkin, a 'coder' is a kind of functional coding mechanism in the human mind.

4. The property of the unstressed syllable to be attached to the stressed syllable of the preceding word (*enclise*), or to the stressed syllable of the following word (*proclise*). For example, in *as a* ***matter*** *of* ***fact*** the syllables *as a* and *of* remain unstressed, in contrast to ***as*** *a* ***stu****dent, he…*

5. *Editors' Note*: Chernov's original term is 'matching word order', which he defines in a footnote as follows: 'We use the concept of matching word order for cases where the subject of the sentence and the theme of the utterance coincide, as do the predicate of sentence and the rheme of the utterance.' This seems close to the concept of 'syntactic-semantic mapping' which is more widely used to describe the direct or indirect mapping of information structure (theme, rheme) to sentence structure (subject, predicate), and moreover avoids possible confusion with the idea of 'symmetry' between the structures of two languages (SL and TL for example).

6. In emphatic utterances, the predicate can open the sentence in both Russian and Spanish:

> ***Entró*** *la mujer en la habitación /*
> **Вошла** женщина в комнату.
> 'Entered the woman into the room'
>
> ***Pasó*** *el coche. /*
> **Проехал** автомобиль.
> 'Went/Drove-past the car'

In such cases the inversion and logical stress carry the rheme over to the beginning of the utterance.

7. Ch. Bally wrote rather emphatically that 'the French language has another advantage for communication in that it is a language oriented to the hearer, and in the course of speaking it places signs in such a way as to facilitate comprehension […] The progressive sequence, this supporting beam of French grammar, consists in first designating what you are talking about and then expressing the idea which is the objective of the utterance' (Bally 1955: 397).

8. Relevance theory authors have argued convincingly and in some considerable detail (Sperber & Wilson 1986/1995: 202–224) for the use of this term (*foregrounding*) in preference to such terms as theme vs. rheme, topic vs. comment, presupposition vs. focus, and given vs. new.

9. Cf. *foregrounding* and *backgrounding* (Sperber & Wilson 1995). Chernyakhovskaya (1976: 47) notes that the perception of the sense group as a rheme of the utterance is facilitated by indicators in the opposite (theme) part of the utterance, which contribute to the

concentration of logical stress on the sense group in which these indicators are absent; so that here, a thematisation device becomes a kind of 'negative rhematic indicator'.

10. *Editors' note*: in recent SI literature, such semantically weak or bleached verbs have been called 'pallid' verbs, after Mattern (1974).

11. Strugatsky, A. and Strugatsky, B. (1995). *Complete Works.* Vol. 5. 29. Moscow: Tekst (in Russian).

12. The Spanish norm in this case is more liberal than Russian. Free word order in Spanish allows for the two standard sentences: *La mujer entró en la habitación* (the woman entered the room) and *En la habitación entró una mujer* (into the room came a woman). However, the use of the article in Spanish in combination with word order also makes possible utterances like: *Una mujer entró en la habitación* (a woman entered the room) and *En la habitación entró la mujer* (into the room came the woman) The actual sense of the utterance is determined situationally, depending on its presupposition(s). Thus the emphasis in the last example *En la habitación entró la mujer* (into the room came the woman) may be interpreted to mean either 'that same woman', or 'into the room (and not into the kitchen)'

13. *Editors' note*: this is the on-line strategy commonly known in the literature on simultaneous interpretation as 'chunking' (see Ilg 1978; Zhong 1984; Setton 1999).

14. Numerous other means of overcoming syntactic difficulties of interpretation from Russian into English are considered in Visson's book (Visson 1999). In fact, these difficulties arise out of lack of co-ordination between grammatical word order and communicative word order in English, a fixed word order language.

15. *Editors' note*: again, known as 'chunking' (see Note 11 above).

16. *Editors' note*: it seems difficult to say what is a linear, or 'natural' logical sequence (see also below), which implies some canon of information presentation distinguished as a universal default with respect to all other register-, culture- or language-specific orders of presentation.

17. *Editors' note*: Ivanova (1999) found no statistically significant differences in accuracy for interpreting noun phrases headed by simple vs. deverbal nouns.

18. *Editors' note*: we assume this term is used to designate a verb which can be converted from or into another part of speech by zero affixation.

Chapter 10

1. This has been very convincingly argued for by Beaugrande and Dressler (1981/1986), as well as by Sperber and Wilson (1986/1995).

2. The highest level of redundancy in speech established so far was close to 96% for the 'sublanguage' of an exchange between a pilot and an air traffic controller (Frick & Sumby 1952). One can assume that the normal level of redundancy for SI is close to that, and that each additional percentage point of discourse redundancy is subjectively quite significant for the simultaneous interpreter.

3. *Editors' note*: see Chapter 6, Note 5.

4. Since we consider the message development probability anticipation mechanism to be a functional system in the sense of Anokhin, it is appropriate to quote him: 'A functional system is always heterogeneous. It always consists of a number of key mechanisms, each of which occupies its own place and is specific for the entire process of the formation of a functional system' (Anokhin 1978: 86).

5. Cf. L. Chistovich (1965: 223): 'Stressed syllables in a word serve to recognise the number of full-fledged words in a phrase, while the stress location is an important distinctive feature of the word. Thus, chunks of the communication larger than words acquire a new useful acoustic parameter – the rhythmic pattern. . . When disambiguating a meaningful communication, a person makes use of the rhythmic pattern of successive stressed and unstressed syllables, an additional feature resistant to frequency distortions and noise'.

6. '. . . in the operation of *distinction* the object perceived is identified in relation to the image in one's memory, therefore one might say that it is isolated with reference to something which is not in one's sight (or in one's hearing); in the operation of *recognition*, on the contrary, the object is identified through a set of its components which are present in perception, although its identification occurs through the image in one's memory' (Zhinkin 1967: 2368).

7. Attempts to use 'SI' to render word lists have had nothing to do with actual SI (cf. Benediktov 1974). Equally senseless is a manual of simultaneous interpreting published in London in 1971 (Hendrickx 1971), which offered word lists to be read out by the teacher to students as an SI exercise.

8. We deliberately abstain from specifying the nature of such a representation, except by using the term *sense*, as previously defined, since we believe that any attempt today to specify mental representation (as a logical proposition, as in Relevance Theory, or a unit of the Language of Thought, as in Setton's model) simply amounts to guessing about the contents of the black box. We prefer to wait until an opportunity arises to look inside without breaking this unique human mechanism.

9. cf. Gile's Effort Models of interpreting (Gile 1995).

10. *Editors' note:* Relevance (Sperber & Wilson 1986/1995) does not discuss interpreting, nor indeed comprehension processes over extended utterances, but does posit 'anticipatory syntactic hypotheses' and 'anticipatory logical hypotheses'.

11. Naturally, we also have to consider 'the unsteady nature of the structural units of activity', which is expressed in that 'each of them may become fractional, or conversely, may include units which were previously relatively independent. Thus, in the course of working toward an identified overall objective, intermediate objectives may come up, and as a result the single action is fragmented into a series of separate sequential operations; that is particularly typical for those cases when the action is performed in conditions preventing performance through already formed (automatic – Gh.Ch.) operations. The opposite process consists in the enlargement of the units of activity' (A. A. Leont'ev 1974: 17). The speech chunks TL-25 and 26 in the synchronised transcript in Figure 16 are an example of the first case, and compression is an illustration of the second case.

12. *Editors' note:* this example is somewhat strange in that no French native speaker would even attempt to say '*quarante antérieures années*' (more acceptable usages might include '[*les quarante…*] *précédentes années, années précédentes, dernières années*').

13. '[…] in the substitution of the TL text for the SL text, some kind of an invariant must be preserved; and the degree to which that invariant is preserved determines the equivalence of the TL text and the SL text' (Barkhudarov 1975:9).

14. According to Zwilling (1970:126–127), 'in real life the test of translation for adequacy is pragmatic, i.e. it is in the joint activity of people whose joint actions are mediated by translation. The adequacy of translation must be confirmed by the efficiency of that activity.'

Chapter 11

1. Zimnyaya and Chernov (1970, 1973); Chernov (1971, 1972, 1973); Zhinkin (1958); Kochkina (1963); Zimnyaya (1973, 1974b).

2. *Editors' note*: this is apparently assumed by Chernov to be the average duration of articulation of syllables in speech.

3. Another explanation may be that the syntactic component of these sentences remains intact and therefore easier to comprehend.

4. Cf. a passage from Arthur Hailey's *Wheels*:

> *After a while she said, 'I guess black is beautiful, the way they say. But then I guess everything's beautiful if you look at it on the right kind of day.'*
> *'Is this that kind of day?'*
> *You know what I'd say today? Today, I'd say '**ugly is beautiful**'!'* (Hailey 1971:197)

5. '[The] rhythmic organization of poetic speech, its acoustic ordering […] are those components of this type of speech which add a certain predictability to the message. However this predictability is of a somewhat higher order. It reveals the nature of information to the hearer and thus concentrates her attention on the manner of presentation. This form of presentation mobilizes the perceptual mechanisms to a more discrete perception of information […]' (Galperin 1974:60).

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Appendix A

Buenos Aires corpus – UN, 1978, experiment in remote interpreting

Extract 1. (**see Chapter 5**)

	Original (SL) speech	**Russian interpretation New York (remote) team**	**Russian interpretation Buenos Aires (on site) team**
1.1	I should like	Я хотел бы	Я хотел бы
1.2	to inform the conference	проинформировать конференцию	проинформировать членов конференции
1.3	that this morning	что сегодня утром	что сегодня утром
1.4	the United Nations	Организация Объединённых Наций	Организация Объединённых Наций
1.5	with the co-operation	в сотрудничестве	при сотрудничестве
1.6	of the United States National Aeronautic and Space Administration (NASA)	с Соединёнными Штатами… '*with the United States…*' Национальной администрацией по космосу и аэронавтике США '(*with the*) *National administration on space and aeronautics* (*of*) *USA*'	с Национальным агентством по космическим исследованиям Соединённых Штатов – НАСА '*with* (*the*) *National Agency on space explorations* (*of the*) *United States – NASA*)
1.7	the Communications Satellite Corporation (COMSAT)	Корпорацией спутников – Комсат	и с КОМСАТ
1.8	the ENTEL of Argentina	и ЭНТЕЛ, Аргентина	и ЭНТЕЛ, Аргентина
1.9	are conducting an experiment	проводят эксперимент	проводят эксперимент
1.10	in remote interpretation	по переводу	по дистанционному переводу
1.11	via satellite	через спутник	через спутник

(*continued*)

	Original (SL) speech	Russian interpretation New York (remote) team	Russian interpretation Buenos Aires (on site) team
3.1	. . .During the experiment	В ходе эксперимента	Во время эксперимента
3.2	the voice of the speaker	голос оратора	голос оратора
3.3	in the plenary	на пленарном заседании	на пленарном заседании
3.4	is being sent via satellite	передаётся по спутнику	передаётся через спутник
3.5	to New York	в Нью-Йорк	в Нью-Йорк
4.1	The interpretations	Переводы. . .в залах "А" и "Б" *'translations . . . in rooms A and B'*	Перевод, который вы слышите *'the translation which you hear'*
4.2	heard in *salas* A and B	. . .которые слышатся в залах "А" и "Б" *'. . . which (are) heard in rooms A and B'*	в залах "А" и "Б *'in rooms A and B'*
4.3	are originating at the United Nations Headquarters in New York. . .	делаются в Нью-Йорке в центральных учреждениях ООН	делается в Центральных учреждениях ООН в Нью-Йорке
6.1	. . .At times	Иногда	Временами
6.2	the interpreter booths	. . .	. . .
6.3	in the conference room	будут также использоваться и кабины	. . .
6.4	will also be used	переводчиков в зале заседаний *'will also (be) used interpreting booths in (the) conference room'*	будут подключаться также и кабины переводчиков здесь в зале *'will tune in also interpreting booths here in (the) room'*
7.1	The communications links	Связь	Связь
7.2	established between	между	установленная между
7.3	the COMSAT station in Buenos Aires	станцией в Буэнос-Айресе	станциями КОМСАТ в Буэнос-Айресе
7.4	and the NASA station in New York	и станцией НАСА в Нью-Йорке	и станцией НАСА в Нью-Йорке
7.5	include	включает	включает
7.6	one color-television channel	один канал цветного телевидения	один канал цветного телевидения

(*continued*)

	Original (SL) speech	Russian interpretation New York (remote) team	Russian interpretation Buenos Aires (on site) team
7.7	and eight voice-grade channels	и восемь голосовых каналов	и восемь каналов, передающих звук и голос
7.8	in both directions	в обоих направлениях	в обоих направлениях
8.1	The satellite links	Спутниковая связь	Связь через спутник
8.2	terminate	имеет свои терминалы	имеет терминалы
8.3	in this conference room	здесь в зале *'here in the room'*	здесь в этом зале *'here in this room'*
8.4	and the interpretation center in New York. . .	и в. . . центре, в Нью-Йорке *'and in . . . (the) centre, in New York'*	и в Центре переводов в Нью-Йорке *'and in (the) Interpretation Centre in New York'*
13.1	. . .Delegates		Делегатов
13.2	are requested	Мы просим делегатов	просят
13.3	to speak clearly and slowly	говорить медленно и ясно	говорить медленно и ясно
13.4	and to face the microphones	. . .	. . .
13.5	at all times	и постоянно	и постоянно
13.6	during their statements	в ходе своих заявлений говорить в микрофон	говорить в микрофон в ходе своего выступления
16.1	. . .The United Nations Secretariat	Секретариат Организации Объединённых Наций	Секретариат ООН
16.2	wishes to thank	хотел бы поблагодарить	хотел бы поблагодарить
16.3	all the delegations	все делегации	все делегации
16.4	for their co-operation	за их сотрудничество	за их сотрудничество
16.5	in the successful conduct	в успешном проведении	в успешном осуществлении
16.6	of this experiment	настоящего эксперимента	данного эксперимента

Extract 2. (see Chapter 7)
Spanish into English, French and Russian (two versions each)

	Spanish original	English interpreter 1	English interpreter 2
1.	La cooperación internacional no puede ya ser entendida solamente como la transferencia de tecnologías que corresponden muchas veces a estilos de vida y de crecimiento económico muy diferentes de los ideales de muchos países en desarrollo	International cooperation can no longer be understood merely as the transfer of technology, which often corresponds to lifestyles and economic growth that differs very much from the ideals of the developing countries.	International cooperation can no longer be understood solely as the transfer of technology, which on many occasions corresponds to living styles and economic growth, which are very different from the ideals of many developing countries.
2.	Cada vez se toma una mayor conciencia de que la cooperación debe estar encaminada a fortalecer la capacidad interna para la creación de tecnologías propias o, por lo menos, para la sabia selección y adaptación de las tecnologías de avanzada a las necesidades de cada país.	Every time there is a growing awareness that cooperation must be designed to strengthen the internal capability to create one's own technologies or at least, for the wise selection and adjustment of advanced technologies to the needs of each individual country.	There is a growing awareness of the fact that cooperation must be aimed at strengthening the internal capacity of countries to develop their own technologies or, at the very least, to make a wise choice in and adapt advanced technologies to the needs of each country.
3.	Con estas características, la cooperación entre los países en desarrollo podrá contribuir verdaderamente a la formación de un nuevo orden económico internacional.	With these characteristics, cooperation among developing countries can make a genuine contribution to bring about a new international economic order.	With these characteristics, cooperation among the developing countries can truly contribute to the creation of a new international economic order.
4.	En el trasfondo de nuestros debates se halla latente una preocupación que se plantea cada vez con mayor insistencia en la mente de los líderes del mundo en desarrollo.	As a background of our debate there is a latent concern which comes increasingly to the fore in the minds of the leaders of the developing world.	Underlying our debate there is a latent concern with the insistence in the minds of the leaders of the world in development.
5.	¿Qué modelo de desarrollo se quiere?	What model of development is desired?	What development model is desired?
6.	¿Qué ideales alimentan nuestros pueblos?	What ideals nourish our people?	What ideas do our peoples adhere to?
7.	Y la pregunta más desconcertante.	And the most disconcerting question:	These are disconcerting questions.

(*continued*)

	Spanish original	English interpreter 1	English interpreter 2
8.	¿Se alcanzaran estos ideales siguiendo los modelos que están implícitos en la cooperación vertical?	will these ideals be fulfilled by following the models that are implicit in vertical cooperation?	Will these ideals be achieved following the models which are implicit in vertical cooperation?
9.	La CTPD, como primera consecuencia de su acción, debilitará y eliminará las barreras de comunicación entre los países que sufren problemas semejantes y permitirá la transmisión de experiencias más cercanas a sus realidades, soluciones tecnológicas, más adecuadas a un modelo de crecimiento armónico y un intercambio de conocimientos que faciliten el logro de un desarrollo independiente y autosostenido.	TCDC as a first consequence of its action will weaken and eliminate barriers of communication among countries which suffer from similar problems and will make it possible to transmit experience that is closer to their way of life and problems, technological solutions more in accord with models of a harmonious growth and an exchange of knowledge which will facilitate the attainment of independent and self-sustaining development.	CT[. . .]TCDC as the primary consequence of our action will weaken and eliminate barriers to communication among those countries who have similar problems and will make it possible to transfer experience which is closer to their realities, more suitable technological solutions, more suitable to harmonious growth models and an interchange of knowledge which will promote the development of independent and self-reliant development.
10.	Por otra parte, situaciones históricas comunes, comunidad de interés y, en muchas ocasiones, afinidades culturales de algunas regiones y subregiones del mundo en desarrollo han gestado paulatinamente intentos más o menos coordinados y coherentes de cooperación mutua.	On the other hand, common historical past, a community of interest, and, in many cases, cultural affinities in the developing world in regions and subregions have gradually brought about more or less coherent systems of joint cooperation.	Furthermore, common historic situations, common interests and on many occasions cultural affinities in certain regions and subregions in the developing world have gradually led to more or less coordinated and consistent attempts at mutual cooperation.
11.	La CTPD ofrece la oportunidad histórica de extender y perfeccionar los mecanismos que espontáneamente han surgido entre los países de la misma subregión y se han extendido para formar el marco de la cooperación regional.	TCDC offered the historic opportunity of extending and perfecting the mechanisms which have spontaneously emerged in the countries of the same subregions and have been extended to form the framework of regional cooperation.	TCDC provides a historic opportunity to extend and perfect the machinery that has spontaneously emerged among the countries in the same subregions and has expanded to create a framework for regional cooperation.

Into French

	Spanish original	French interpreter 1	French interpreter 2
1.	La cooperación internacional no puede ya ser entendida solamente como la transferencia de tecnologías que corresponden muchas veces a estilos de vida y de crecimiento económico muy diferentes de los ideales de muchos países en desarrollo.	La coopération internationale ne saurait être comprise uniquement comme étant le transfert de techniques qui incombent très souvent à des modes de vie et de croissance économique extrêmement différents par rapport à ceux qui sont les systèmes idéaux des pays développés.	La coopération internationale ne saurait en aucun cas être interprétée comme le seul transfert des techniques, car trop souvent ces techniques correspondent à des styles de vie et à une croissance économique tout a fait écartés de l'idéal de nombreux pays en développement.
2.	Cada vez se toma una mayor conciencia de que la cooperación debe estar encaminada a fortalecer la capacidad interna para la creación de tecnologías propias o, por lo menos, para la sabia selección y adaptación de las tecnologías de avanzada a las necesidades de cada país.	On se rend de plus en plus compte que la coopération doit viser le raffermissement de la coopération techniques pour la création de techniques propres ou bien, a tout le moins, pour le choix judicieux et l'adaptation des techniques du progrès adaptées aux besoins de chaque pays	Chaque jour l'on prend conscience de façon plus marquée du fait que la coopération doit viser à renforcer la capacité nationale pour la création de techniques qui soient propres au pays, ou du moins pour un choix équilibré et l'adaptation de techniques de pointe aux nécessités de chaque pays.
3.	Con estas características, la cooperación entre los países en desarrollo podrá contribuir verdaderamente a la formación de un nuevo orden económico internacional.	Ayant brossé le tableau de ces caractéristiques, je veux dire que la collaboration entre les pays en développement pourra contribuer de façon réelle à leur formation d'un nouvel ordre économique international.	Ce n'est que si elle réunit de telles caractéristiques que la coopération entre pays en développement pourra apporter une authentique contribution à la constitution d'un nouvel ordre économique international.
4.	En el trasfondo de nuestros debates se halla latente una preocupación que se plantea cada vez con mayor insistencia en la mente de los líderes del mundo en desarrollo.	Au cours de nos débats, on voit surgir un souci qui ne fait que s'accroître dans l'esprit des êtres qui vivent dans le monde en développement.	Il y a une préoccupation latente qui sous-tend toutes nos discussions et qui chaque jour davantage occupe l'esprit des dirigeants du monde en développement.
5.	¿Qué modelo de desarrollo se quiere?	Que faut-il comme modèle de développement?	Quelle espèce de modèle de développement souhaite-t-on atteindre?

(*continued*)

	Spanish original	French interpreter 1	French interpreter 2
6.	¿Qué ideales alimentan nuestros pueblos?	Quels idéaux nourrissent nos peuples?	Quel idéal doit être celui de nos peuples?
7.	Y la pregunta más desconcertante.		Cette question est déconcertante.
8.	¿Se alcanzaran estos ideales siguiendo los modelos que están implícitos en la cooperación vertical?	Comment parvenir[. . .] à les atteindre, ces idéaux en suivant les modèles qui ont été tracés de façon implicite par la coopération verticale?	Est-ce qu'on arrivera à atteindre cet idéal en suivant les modèles qui sont implicites à ce que l'on appelle la coopération verticale?
9.	La CTPD, como primera consecuencia de su acción, debilitará y eliminará las barreras de comunicación entre los países que sufren problemas semejantes y permitirá la transmisión de experiencias más cercanas a sus realidades, soluciones tecnológicas, más adecuadas a un modelo de crecimiento armónico y un intercambio de conocimientos que faciliten el logro de un desarrollo independiente y autosostenido.	La CTPD en tant que première conséquence de ces mesures devra éliminer les barrières imposées aux communications dans les pays qui pâtissent du même genre de problèmes. Elle pourra également permettre le transfert d'expériences plus proches de leur réalité, de solutions techniques adaptées aux modèles de croissance harmonieuse, ainsi qu'un échange des connaissances qui pourra faciliter l'obtention d'un développement indépendant et autonome.	La CTPD en tant que première conséquence de son action, va affaiblir, abaisser et même éliminer les barrières de communication entre les pays qui souffrent de problèmes identiques, et permettra de transférer des expériences beaucoup plus proches des réalités, des solutions techniques beaucoup plus adaptées aux modèles de croissance harmonieuse et à un échange des connaissances qui permette l'obtention d'un programme de développement qui soit indépendant et qui se suffise à lui-même.
10.	Por otra parte, situaciones históricas comunes, comunidad de interés y, en muchas ocasiones, afinidades culturales de algunas regiones y subregiones del mundo en desarrollo han gestado paulatinamente intentos más o menos coordinados y coherentes de cooperación mutua.	D'autre part, des situations historiques communes, une communauté d'intérêts et, bien souvent, des affinités culturelles d'une région ou d'une sous-région du monde en développement font que, peu à peu, on a essayé de coordonner de façon cohérente la coopération réciproque.	Par ailleurs, des situations historiques communes, une communauté d'intérêts, dans de nombreux cas, les affinités culturelles de certaines régions ou sous-régions du monde en développement ont produit par étapes successives des tentatives plus ou moins coordonnées, cohérentes, de coopération mutuelle.

(*continued*)

	Spanish original	French interpreter 1	French interpreter 2
11.	La CTPD ofrece la oportunidad histórica de extender y perfeccionar los mecanismos que espontáneamente han surgido entre los países de la misma subregión y se han extendido para formar el marco de la cooperación regional.	La CTPD offre une occasion historique permettant d'étendre et de perfectionner les mécanismes qui, de façon spontanée, ont pu surgir parmi les pays d'une même région et qui se sont élargis pour constituer le cadre de la coopération régionale.	La CTPD offre l'occasion historique d'accorder, de perfectionner et de mettre à la disposition des pays des mécanismes, qui auraient surgissent spontanément entre les pays d'une seule et même région et qui ensuite s'élargissent pour constituer le cadre d'une coopération régionale.

Into Russian

	Spanish original	Russian interpreter 1	Russian interpreter 2
1.	La cooperación internacional no puede ya ser entendida solamente como la transferencia de tecnologías que corresponden muchas veces a estilos de vida y de crecimiento económico muy diferentes de los ideales de muchos países en desarrollo.	Международное сотрудничество более нельзя понимать просто лишь как передачу технологии, которая часто соответствует образу жизни и экономическому уровню, который значительно отличается от идеалов развивающихся стран.	Международное сотрудничество уже нельзя истолковывать как просто передачу технологии, часто соответствующей образу жизни и экономическому росту, который весьма отличается от идеалов многих развивающихся стран.
2.	Cada vez se toma una mayor conciencia de que la cooperación debe estar encaminada a fortalecer la capacidad interna para la creación de tecnologías propias o, por lo menos, para la sabia selección y adaptación de las tecnologías de avanzada a las necesidades de cada país.	Каждый раз, с каждым днём всё глубже осознаётся необходимость того, чтобы сотрудничество служило целям укрепления возможности и потенциала создания своей собственной технологии или, по крайней мере, для мудрого выбора и внесения корректив в современную технологию для приспособления её к потребностям каждой отдельной страны.	Каждый раз всё больше осознаётся тот факт, что сотрудничество должно быть направлено на укрепление внутреннего потенциала для создания собственной техники или, по меньшей мере, для разумного отбора и приспособления развитой техники к потребностям каждой страны.

(*continued*)

	Spanish original	Russian interpreter 1	Russian interpreter 2
3.	Con estas características, la cooperación entre los países en desarrollo podrá contribuir verdaderamente a la formación de un nuevo orden económico internacional.	С этими характеристиками сотрудничество между развивающимися странами может послужить подлинным вкладом в дело создания нового международного экономического порядка.	При таких свойствах сотрудничество между развивающимися странами сможет на деле содействовать установлению нового международного экономического порядка.
4.	En el trasfondo de nuestros debates se halla latente una preocupación que se plantea cada vez con mayor insistencia en la mente de los líderes del mundo en desarrollo.	Фоном нашей работы является ещё дремлющая озабоченность, которая всё ярче проявляется у лидеров развивающегося мира	На фоне нашей дискуссии можно заметить постоянную заботу, которая всё больше осознаётся руководителями развивающегося мира.
5.	¿Qué modelo de desarrollo se quiere?	Какая модель развития нужна для нас?	Какая требуется модель развития?
6.	¿Qué ideales alimentan nuestros pueblos?	К чему стремятся наши народы?	Какими идеалами движимы наши народы?
7.	Y la pregunta más desconcertante.	И наиболее тревожный вопрос –	И самый беспокоящий вопрос:
8.	¿Se alcanzaran estos ideales siguiendo los modelos que están implícitos en la cooperación vertical?	будут ли осуществлены эти идеалы, следуя моделям, которые имплицитны в вертикальном сотрудничестве?	удастся ли осуществить эти идеалы, следуя тем моделям, которые присутствуют в случае вертикального сотрудничества?
9.	La CTPD, como primera consecuencia de su acción, debilitará y eliminará las barreras de comunicación entre los países que sufren problemas semejantes y permitirá la transmisión de experiencias más cercanas a sus realidades, soluciones tecnológicas, más adecuadas a un modelo de crecimiento armónico y un intercambio	ТСРС в качестве первого последствия наших действий поможет снять барьеры в коммуникациях между странами, страдающими от одних и тех же проблем, и откроет возможности передачи опыта, которые ближе их образу жизни, их проблемам, технологические решения, более соответствующие моделям	[. . .]как конференция по сотрудничеству между развивающимися странами в качестве первого такого действия ослабит и устранит барьеры, препятствующие связям между странами, имеющими подобные проблемы, позволит поделиться непосредственным опытом их действительности, наиболее

(*continued*)

	Spanish original	Russian interpreter 1	Russian interpreter 2
	de conocimientos que faciliten el logro de un desarrollo independiente y autosostenido.	гармоничного роста, и обмен знаниями, который облегчит достижение независимого и самостоятельного роста.	подходящими техническими решениями, который соответствуют гармоничному развитию и обмену знаниями, соответствующими независимому развитию, основанному на собственных условиях.
10.	Por otra parte, situaciones históricas comunes, comunidad de interés y, en muchas ocasiones, afinidades culturales de algunas regiones y subregiones del mundo en desarrollo han gestado paulatinamente intentos más o menos coordinados y coherentes de cooperación mutua.	С другой стороны, общие исторические корни, общность интересов, культурная близость в развивающемся мире, в регионах и субрегионах, постепенно привели к созданию более или менее единой системы совместного сотрудничества.	С другой стороны, общность интересов, сходство и культурное подобие различных субрегионов и регионов развивающегося мира привели к более или менее последовательным и согласованным попыткам развития.
11.	La CTPD ofrece la oportunidad histórica de extender y perfeccionar los mecanismos que espontáneamente han surgido entre los países de la misma subregión y se han extendido para formar el marco de la cooperación regional.	ТСРС открывает нам историческую возможность расширения и совершенствования механизмов, в которой спонтанно возникают в странах одного субрегиона и которые являются именно рамками регионального сотрудничества.	ТСРС – это историческая возможность расширения и совершенствования тех механизмов, которые спонтанно возникли в странах одного и того же региона и которые таким образом расширяются для применения в целых регионах.

Extract 3. (see Chapter 8, Section 38)
English into French, Spanish and Russian (two versions each)
into French

	Original passage	SI version # 1	SI version # 2
1.	Many speakers have extolled the strength of TCDC and some have discussed the relevant constraints.	De nombreux orateurs ont évoqué la force de la CTPD et certains ont débattu des contraintes éventuelles	Bon nombre d'orateurs ont insisté, sur les traits saillants de la CTPD et certains ont évoqué les contraintes qui existent et. . .
2.	Invariably financing has been highlighted as the main problem holding back TCDC and certainly came through in. . . . . .virtually. . . every national report.	L'aspect financier a été souvent mis en évidence en ce qui concerne la CTPD et. . . . . .ceci figure dans presque tous les rapports nationaux.	. . .l'on a toujours mis en relief le financement comme étant l'obstacle principal a surmonter dans le cas de la CTPD Ceci est ressorti de presque tous les rapports nationaux.
3.	I personally have difficulty however in agreeing that this is the main reason we have not had more TCDC in today's world. Scattered throughout the many reports and documents prepared for this Conference is the phrase 'attitudinal barriers'.	Personnellement, j'éprouve du mal à accepter que c'est la la raison essentielle pour laquelle nous n'avons pas plus de CTPD dans le monde d'aujourd'hui Dans les divers rapports et documents préparés pour la conférence nous trouvons la phrase 'barrieres psychologiques.'	Personnellement, j'éprouve quelque difficulté à convenir que c'est là la principale raison pour laquelle il n'y a pas eu davantage de CTPD jusqu'à présent dans le monde Dans les très nombreux rapports et documents préparés aux fins de cette conférence l'on retrouve très souvent l'expression 'barrières d'attitude, constituées par des attitudes.'
5.	Very seldom is the phrase defined	Rarement l'on ne trouve pas cette phrase	. . . . .
6.	Certainly, in some cases it means envy, distrust, ignorance, or fear of one's neighbor.	dans certains cas. Cela signifie l'envie, la méfiance, l'ignorance ou la crainte du voisin.	Dans certains cas il s'agit de jalousie de méfiance, d'ignorance ou de peur de son voisin.
7.	In other cases it refers to long historical now invisible colonial linkages.	Dans d'autres cas cela concerne des liens coloniaux historiques, presque invisibles maintenant.	Dans d'autres cas il s'agit de liens coloniaux ou historiques désormais invisibles.

(*continued*)

	Original passage	SI version # 1	SI version # 2
8.	One must recognize that these psychological barriers do exist and should face up to them.	L'on doit reconnaître que ces barrières psychologiques ces barrières psychologiques existent bel et bien et qu'il faut y faire face.	Force nous est de reconnaître que existent bel et bien et qu'il nous faut y faire face.
9.	For many countries attitudinal barriers are a more important constraint to TCDC than financial barriers and can only be overcome by the developing countries themselves.	Dans de nombreux pays les barrières psychologiques sont des contraintes les plus importantes pour la CTPD que les barrières financières et que l'on ne peut surmonter qu'au sein même des pays en développement.	Pour de très nombreux pays, les barrières qui constituent les attitudes sont une limitation, un obstacle plus important à la CTPD que les obstacles financiers et ne sauraient être surmontés que par les pays en développement.
10.	This will be the most difficult task of all.	Ce sera là la tâche la plus difficile entre toutes.	Ce sera là la tâche la plus difficile à laquelle nous devrons nous atteler.
Into Spanish			
1.	Many speakers have extolled the strength of TCDC and some have discussed the relevant constraints.	Varios oradores han hablado de las virtudes del CTPD y algunos has manifestado sus limitaciones.	Muchos oradores han exaltado . . . a la CTPD y algunos han discutido las limitaciones que tiene.
2.	Invariably financing has been highlighted as the main problem holding back TCDC and certainly came through in. . . . . .virtually. . . every national report.	Invariablemente, la financiación ha sido uno de los principales problemas destacados como limitando el CTPD y esto prácticamente se ha manifestado en todos los informes nacionales.	Invariablemente, la financiación ha sido destacada como el principal problema que frena a la CTPD y ciertamente esto pudo escucharse o verse en casi cada uno de los informes nacionales.
3.	I personally have difficulty however in agreeing that this is the main reason we have not had more TCDC in today's world.	Personalmente, me resulta difícil concordar en que este es el motivo principal por el cual no hemos tenido más CTPD en el mundo actual.	Yo, personalmente, tengo dificultad en convenir que esta es la primera razón por la que . . .vistas las operaciones CTPD en el mundo de hoy.

(*continued*)

	Original passage	SI version # 1	SI version # 2
4.	Scattered throughout the many reports and documents prepared for this Conference is the phrase 'attitudinal barriers'.	En todos los informes y documentos preparados para esta Conferencia vemos la frase 'actitud contra las barreras'	A través de todos los informes y documentos preparados para esta Conferencia se encuentra la frase 'actitud sin barreras'.
5.	Very seldom is the phrase defined.	Pocas veces se define esta frase.	. . . se encuentra esta frase;
6.	Certainly, in some cases it means envy, distrust, ignorance, or fear of one's neighbor.	En algunos casos, es cierto, hay envidia, desconfianza, ignorancia o temor del vecino.	en algunos casos quiere decir envidia, desconfianza, ignorancia, o temor del vecino.
7.	In other cases it refers to long historical now invisible colonial linkages.	en otros casos, se refiere a un vínculo colonial de larga data y ahora invisible.	En otros casos se refiere a vínculos coloniales antiguos pero que ahora son visibles.
8.	One must recognize that these psychological barriers do exist and should face up to them.	Debemos reconocer que estas barreras psicológicas existen y debemos hacerles frente.	Pero hay que reconocer que estas barreras psicológicas sí existen y hay que enfrentarlas.
9.	For many countries attitudinal barriers are a more important constraint to TCDC than financial barriers and can only be overcome by the developing countries themselves.	Muchos países piensan que estas barreras de actitud son una limitación más importante al CTPD que la financiera y solamente pueden superarse por los propios países en desarrollo.	Para muchos países las actitudes, las barreras de actitud, son limitacionesa la CTPD más que a las barreras financieras y solo pueden ser superadas por los países en desarrollo propiamente dichos.
10.	This will be the most difficult task of all.	Esta será la labor más difícil de todas.	Esta será la tarea más difícil de todas.
Into Russian			
1.	Many speakers have extolled the strength of TCDC and some have discussed the relevant constraints.	Многие ораторы сейчас уже подчёркивали положительные стороны ТСРС, и это были развивающиеся страны. . .	Многие ораторы восхваляли укрепление ТСРС, а некоторые обсуждали имеющиеся препятствия.

(*continued*)

	Original passage	SI version # 1	SI version # 2
2.	Invariably financing has been highlighted as the main problem holding back TCDC and certainly came through in... virtually... every national report.	И, конечно, финансирование подчёркивалось в качестве основной проблемы на пути к ТСРС. Это звучало во всех национальных докладах.	Неизменно финансирование было основной проблемой, сдерживающей ТСРС. И это, конечно, отражалось почти во всех национальных докладах.
3.	I personally have difficulty however in agreeing that this is the main reason we have not had more TCDC in today's world.	Лично я не могу полностью ... согласиться с тем, что ... именно по этой причине у нас ещё недостаточно сейчас ТСРС в нашем мире.	У меня лично были трудности ... согласиться с тем, что это основная причина того, что ТСРС не в таких широких масштабах имеется в настоящее время.
4.	Scattered throughout the many reports and documents prepared for this Conference is the phrase 'attitudinal barriers'.	Разбросанные по различным частям земного шара нации, представляющие свои доклады... безусловно отдают себе отчёт в существовании определённых барьеров.	Во многих документах и докладах, подготовленных для этой конференции, имеется фраза 'препятствие отношений'.
5.	Very seldom is the phrase defined.	.....	Очень редко даётся, однако, конкретное определение этой фразы.
6.	Certainly, in some cases it means envy, distrust, ignorance, or fear of one's neighbor.	Конечно, в ряде случаев это означает зависть, недоверие, невежество или даже опасение своего соседа.	Конечно, в некоторых случаях это означает зависть, недоверие, невежество или опасение своего собственного соседа.
7.	In other cases it refers to long historical now invisible colonial linkages.	В других случаях речь идёт о давно сложившихся исторических и сейчас даже... колониальных связей.	В других случаях это относится к длительным историческим сейчас уже невидимым колониальным связям.
8.	One must recognize that these psychological barriers do exist and should face up to them.	Можно сказать, что психологические барьеры действительно существуют, и их нельзя сбрасывать со счетов.	Следует признать, что эти психологические барьеры конечно, существуют, и мы должны с ними считаться.

(*continued*)

	Original passage	SI version # 1	SI version # 2
9.	For many countries attitudinal barriers are a more important constraint to TCDC than financial barriers and can only be overcome by the developing countries themselves.	Для многих стран имеются, конечно, и другие барьеры, связанные с позицией страны как в плане ТСРС, так и в плане финансовых барьеров, и они, конечно, не могут... с самими развивающимися странами.	Для многих стран барьеры отношений являются более важным препятствием, чем финансовые препятствия, и их могут преодолеть лишь только сами развивающиеся страны.
10.	This will be the most difficult task of all.	Это явится наиболее трудной задачей для всех.	Это будет наиболее сложной задачей.

Extract 4.
English into French, Spanish and Russian

	Original speech	French interpretation	Spanish interpretation	Russian interpretation
1.	Solutions to the problem of development are best formulated within the context of the overall socio-economic and technological framework of the particular country.	Les solutions aux problèmes du développement se trouvent mieux si on les inscrit dans le contexte économique et social global qui est… et dans le cadre technique qui est propre au pays.	Las soluciones para los problemas del desarrollo *se formulan mejor* dentro del contexto del marco tecnológico, social y económico del país determinado.	Решение проблем развития *лучше всего формулировать* в связи с общей социально-экономической обстановкой каждой отдельной страны.
2.	In particular, attention should be given to the use of appropriate and/or intermediate technology wherever possible.	En particulier, *il convient d'accorder* une attention particulière à l'utilisation ou au recours de techniques dites intermédiaires, lorsque tout cela s'avère possible.	En especial, *se le debe dedicar* atención a la utilización de la tecnología apropiada o de la tecnología intermedia cada vez que ello sea posible.	Следует уделять особое внимание использованию особой и непосредственно доступной технологии в каждом отдельном случае.
3.	In this way, available resources are utilized to the maximum extent and dependence on imported technologies is diminished.	De la sorte, *les ressources disponibles* seront utilisées au maximum et les pays *dépendront moins* des techniques importées.	En esta forma, los recursos disponibles *se aprovechan al máximo* y la dependencia de la tecnología importada *disminuye*.	Таким образом, максимально *будут использоваться ресурсы и уменьшается необходимость* в импорте технологии.
4.	Also the potential for cultural disruption is minimized.	En outre, *l'on réduit* au minimum les possibilités en puissance d'un déséquilibre socio-culturel.	También *sabe minimizar* la posibilidad de trastornos culturales.	Также ущерб для культурной структуры *будет сводиться к минимуму*.
5.	…	…	…	…
6.	Through TCDC, available resources in developing countries will be more effectively utilized.	Par le truchement de la CTPD les ressources disponibles dans les pays *seront mieux utilisées*.	Por intermedio de la CTPD los recursos disponibles en los países en desarrollo *serán utilizados* con mayor eficacia.	Благодаря ТСРС имеющиеся у развивающихся стран ресурсы *удастся использовать эффективнее*.
7.	Research oriented specifically to the needs of the countries will be	Une recherche visant particulièrement à satisfaire les	La investigación dirigida concretamente a la necesidad de	Научные исследования и потребности развивающихся

(*continued*)

	Original speech	French interpretation	Spanish interpretation	Russian interpretation
	encouraged, and since these countries will have improved access to information held in other nations unnecessary duplication of research will be reduced.	besoins des pays *sera appliquée*, et lorsque les pays auront eu accès aux renseignements dont disposent les autres pays, *on veillera à minimiser* au maximum le double emploi pour ce qui est de la recherche.	los países *tendrá que ser alentada*, y estos países tendrán que tener mejor acceso a la información que hay en otros países, *so pena de duplicar* investigación y trabajo.	стран следует расширить и тогда развивающиеся страны благодаря ТСРС получат дополнительную информацию о ресурсах, имеющихся в других странах. Это *сократит дублирование в ходе научных исследований*.
8.	This reflects a more viable means of conducting required studies, since few developing countries have at their disposition the financial or personnel capacity for extensive and broad-based research.	Voilà qui est une façon plus viable pour ce qui est des études à effectuer parce que les pays en développement doivent tenir compte de leurs capacités en finances et en personnel pour ce qui est d'une recherche de base très élargie.	Esto refleja un medio más viable para hacer los estudios necesarios, pues pocos países en desarrollo disponen de la capacidad en finanzas o en personal para una investigación completa y de base amplia.	Необходимо использовать более практические средства в проведении исследований, поскольку не у многих развивающихся стран имеются необходимые финансовый и кадровый потенциалы для ведения широких исследований.
9.	In addition, research based on TCDC may be more effective, since it will have a larger and, in some cases, more appropriate knowledge pool of expertise on which to draw.	Qui plus est, la recherche fondée sur la CTPD pourrait être plus efficace, étant donné *qu'il y aura* une somme de connaissances et des connaissances techniques plus nombreuses dans lesquelles on pourra puiser.	Además, la investigación basada en la CTPD puede ser más eficaz pues *tendrá* conocimiento más amplio y a veces más apropiado, y expertos a quienes recurrir.	Кроме того, исследования, основанные на ТСРС, могут оказаться более эффективными, поскольку во многих случаях удастся лучше узнать, какой опыт можно использовать.
10.	When considering TCDC and industry trade underpinning TCDC, similar parallels can be drawn.	En examinant la CTPD et les échanges qui sous-tendent les activités de la CTPD, *on peut* tirer des parallèles identiques.	Al considerar la CTPD y lo que el comercio y la industria que apoyan la CTPD, *se pueden establecer* parecidos similares.	Помимо ТСРС *можно провести* аналогичные параллели и в других областях.

Appendix B

United Nations General Assembly sessions*

Extract 1. (**see Chapter 7, Section 34**)

phrase #	SL – English	syllable count	TL – Russian	syllable count
0.1	I now give the floor to the distinguished representative of Tanzania	18	Танзания!	4
0.1	Mister President	5	Господин председатель!	7
1.1	the question of Namibia	8	Вопрос о Намибии	7
1.2	which	1		
1.3	is now before the General Assembly	11	рассматриваемый	
1.4	for consideration	6	Генассамблеей	11
1.5	is. . . the question	4		
1.6	without doubt	3	несомненно	4
1.7	which	1		
1.8	reveals fully	4	полностью вскрывает	6
1.9	the deadly consequences	7	смертоносные последствия	9
1.10	of apartheid, racism and colonialism	11	апартеида, расизма и колониализма,	15
1.11	these scourges of humanity	8	истинных бедствий для человечества	11
		87		**74**
2.1	Thus one can see	4		
2.2	from the impressive number of speakers	10	Внушительное число ораторов	11
2.3	on this question	4	по этому вопросу	7
2.4	the particular	8	подчёркивает особую	11
2.5	importance that	1	важность, которую	4
2.6	practically all members	7	почти все члены	5
2.7	of our Organization	7	ООН	2
2.8	attach	2	придают	3
2.9	to the present deliberations	9	данной дискуссии	6
2.10	within the Assembly	6	в Генассамблее.	5
		58		**54**

(*continued*)

phrase #	SL – English	syllable count	TL – Russian	syllable count
3.1	My delegation	5	Моя делегация	7
3.2	which	1		
3.3	has carefully followed	6	внимательно следила	7
3.4	the debate	3	за дискуссией	5
3.5	and carefully studied	6	и тщательно изучила	8
3.6	the reports	3	доклады	3
3.7	of the United Nations Council for Namibia	14	Совета ООН по Намибии	10
3.8	and the Special Committee of twenty four	11	и Комитета двадцати четырёх	11
3.9	regarding Namibia	7	по Намибии.	5
3.10	feels	1	Она	2
3.11	a deep-seated concern	6	глубоко встревожена	7
3.12	with regard to	4		
3.13	the clear deterioration	8	явным ухудшением	7
3.14	of the situation	6	положения	5
3.15	in that Territory	6	в стране	2
3.16	throughout the period	6	за период,	4
3.17	covered	2	охваченный	4
3.18	by those reports	4	докладами	4
		99		**91**
4.1	Indeed	2		
4.2	we	1	Мы	1
4.3	see clearly	3	ясно видим	4
4.4	from the two documents	6	из докладов	4
4.5	that	1	что	1
4.6	the apartheid regime	6	режим апартеида	7
4.7	of South Africa	5		
4.8	flouting	2	попирает	4
4.9	the resolutions	5	резолюции	5
4.10	adopted at the thirty second session	11	тридцать второй сессии	7
4.11	and other resolutions of the United Nations	14	и другие решения ООН,	10
4.12	concerning Namibia	7		
4.13	in particular	5	в частности,	3
4.14	Security Council resolution 385 (1976)	25	резолюцию Совета Безопасности 385 1976 года,	32
4.15	which	1	которые	4
4.16	established	3	создали	3
4.17	the framework	3	условия	4

(*continued*)

phrase #	SL – English	syllable count	TL – Russian	syllable count
4.18	for an acceptable international settlement	13	урегулирования	8
4.19	of the Namibian question	8	намибийского вопроса.	8
4.20	has accentuated	6	Он	1
4.21	further	2	ещё больше	4
4.22	its system of oppression	7	ужесточил систему угнетения	13
4.23	and inhuman exploitation	8	и бесчеловечной эксплуатации	11
4.24	of the Namibian people	8	народа Намибии	7
		152		**141**
5.1	Thus	1		
5.2	the racist colonialist		Расистский колониальный	8
	regime of Pretoria	14	режим Претории	6
5.3	with its typical		с типичной для него	6
	distorted attitude	11	извращённостью	5
5.4	has perpetrated frenetically	10	совершал	3
5.5	brutal acts of repression	7	жестокие и бешеные акты репрессий	14
5.6	against the people of Namibia	9	против народа Намибии,	9
5.7	characterized	4		
5.8	by unwarranted massacres	8	неспровоцированные побоища	12
5.9	of the civilian population	9	гражданского населения,	9
5.10	as well as massive arrests	7	а также массовые аресты	10
5.11	of members	3		
5.12	of the South West Africa People's Organization (SWAPO)	16	членов СВАПО	4
		99		**86**
6.1	To exercise	9	Чтобы добиться	5
	their domination		установления господства	9
6.2	in that part of	9		
	southern Africa	6	на юге Африки	6
6.3	the apartheid regime	5	он	1
6.4	has perpetrated	5	совершил	3
6.5	multiple acts of	8	многие акты	5
6.6	provocation and aggression	9	провокаций и агрессии	9
6.7	against Angola and Zambia	2	против Анголы и Замбии	9
6.8	causing	7		

(*continued*)

phrase #	SL – English	syllable count	TL – Russian	syllable count
6.9	considerable numbers	5	с большим числом	4
6.10	of casualties	7	жертв	1
6.11	and material damage		и материальным ущербом	8
		72		**60**
	Total syllable count	**567**		**506**

UN General Assembly

Extract 2. (**see Chapter 8**)

	Speaker	**Russian interpretation** [RI-1? RI-2?]
1.1	My name is Robert Ch.	Меня зовут Роберт К.
1.2	I am a professor	Я являюсь профессором,
2.1	and the editor and publisher.	редактором и издателем.
3.1	In the name	От имени
3.2	of the US People's delegation	Делегации народа Соединённых Штатов
3.3	I wish to thank you	я хотел бы поблагодарить вас
3.4	for the opportunity	за возможность,
3.5	you have given us	которую вы предоставили нам,
3.6	to speak today.	выступить сегодня перед вами.
4.1	Who are we?	Кто мы такие?
5.2	We are laborers, teachers	Мы рабочие, учителя,
5.3	lawyers and journalists.	адвокаты, юристы и журналисты.
6.1	We are black	Мы – чёрные,
7.1	We are white	мы – белые,
8.1	We are brown	мы – коричневые,
9.1	We are red	мы – *красные*. . . краснокожие.
10.1	Some of us Puerto Rican. . .	Некоторые из нас – пуэрториканцы.
11.1	. . .We are the America	Мы – *пуэрториканцы* (!),
11.2	whose great wealth	которые богаты
11.3	was built	. . .
11.4	through the toil and sufferings	за счёт труда
11.5	of African slaves	африканских рабов, за счёт. . .тех. . . кто. . .
11.6	by Asians	. . .
11.7	who were imported	. . .
11.8	like commercial commodities	. . .
11.9	to build	строили (быстро)
11.10	this country's vast railway system	железные дороги. . .здесь в нашей стране
11.11	by the decimated native	. . .

(*continued*)

	Speaker	Russian interpretation [RI-1? RI-2?]
11.12	Indian population,	. . .
11.13	by Mexicans	. . .
11.14	whose lands	*через* земли лишённых всех прав
11.15	were ruthlessly annexed	индейцев на землях мексиканцев. . .
11.16	in a period of imperialist expansion	. . .
11.17	and by the exploitation	за счёт
11.18	of the labor	труда
11.19	of millions of Europeans	европейцев,
11.20	who fled poverty	которые бежали к. . . от нищеты на родине
11.21	and political and religious persecution	от угнетения на родине
11.22	for what they thought	к так называемой
11.23	would be freedom of opportunity and	свободе,
11.24	democracy	так называемой демократии
11.25	in the United States.	в Соединённые Штаты.
12.1	And we are the America	Мы – американцы,
12.2	whose great wealth	(значительное) богатство которых
12.3	has been profoundly augmented. . .	основывается
12.4	by the imperialist	. . .
12.5	and colonialist exploitation	на эксплуатации богатств
12.6	of millions of workers and peasants	. . .
2.7	in distant continents. . .	(народов) отдалённых континентов. . .

Note

* *Editors' note:* These recordings of original speeches and their (authentic, unedited) interpreted versions were made by Ghelly Chernov at the UN between 1966/1983 while he was himself a staff member there, with the permission of his supervisors, and transcribed mostly by his students in Moscow. Some of these recordings survive on reel-to-reel tapes.

Appendix C

Texts with two types of test items used as input in an SI probability anticipation experiment (Chernov 1978)

Table 10. Type 1 test items: Nonsense sentences

Test item	Text No./Test sentence No.	Test sentences in minimal context
	1/5	. . . Besides, Mr. President, previous to the advent of Europeans on our continent and contrary to preconceived ideas Africans were educated after their own fashion. They had their peace and all necessary institutions of learning and government. They built kingdoms and empires and had an impeccable standard of communal life and morality. They had the empires of SOKOTA,
1		GANDA, KAHNU, GHANA, MALI, SOMOBOI, BANYU, HARAR, GONDAR, and many more.
	2/1	However, before we continue our analysis of the problem so vividly revealed by Bible translating we must slightly digress to briefly deal with an extreme case of translation difficulties. A sentence: THE UGLY
2		BEAUTY RATTLED UP TO THE TOP OF THE SOUR VALLEY – could provide an appropriate example. This is a perfectly correct sentence grammatically, and since it is so it may be translated at least into languages with certain similarities in syntactic structure. At the same time, at least hypothetically, it might become a stumbling block for an interpreter.
	2/2	The following example may serve as a proof of my idea. Suppose, in the following sequences I am making a certain point, trying to bring home to my audience the idea of the importance of form and structure in a language. I say:
3	a	THE GREEN NIGHTS WOKE STRONGLY ON THE LOGICAL ARMCHAIR and further:
4	b	THE SQUARE CIRCLE WALKED READILY ALONG THE STEAMY BEAST, or another one:
5	c	THE ROUND KNIFE FLEW SQUARELY INSIDE THE BOTTOM OF SMOKE –

Table 10. (*continued*)

Test item	Text No./Test sentence No.	Test sentences in minimal context
		the interpreter will have to deal with completely illogical but perfectly correct grammatical sequences. He will immediately recognize them as SENTENCES of the English language, yet they will not make much sense to him, though he will undoubtedly realize that they are meant for the audience and should therefore somehow be rendered to bring home my point about illogical sentences.
	2/3	Their illogical nature may go to extremes, as in previous examples,
6	a	or, on the other hand, may be only partial, as, for instance, in THE YELLOW SYMPOSIUM OF IRON TREES WILL BE DEEPLY HELD YESTERDAY – where at least the sequence SYMPOSIUM... WILL BE... HELD makes some sense; as to the rest, the interpreter will have to render the form to preserve at least some semblance of a sentence in each case, since they are meant as sentences though illogical.
	2/4	It might be of interest to experimentally show which is a greater
7		difficulty, a sentence like [...] or THE LIVELY GLOOMY MACHINERY DROPPED THE MOON WITH HEAVY PLEASURE where the perfect syntactic form and an equally perfect absence of any logic makes it stand in sharp contrast to the previous one.
	3/1	Ниже приводятся фразы:
8	a	КИСЛАЯ СЛАДОСТЬ ВСКРИКНУЛА НАЗЕМЬ ОТ ОЖИРЕНИЯ.
9	b	ПРОХОДНОЙ БУКЕТ ВЫТЕК С ХОЛОДНЫМ ШУМОМ.
10	c	КРУГЛЫЙ КВАДРАТ ПОЛЯ ЛЕТЯ ПОД ПОЛОМ.
		Попробуем проанализировать эти речевые отрезки с точки зрения их семантической структуры. Они однородны: все они лишены смысла в сочетании, хотя каждый элемент любой их трех структур вполне осмыслен.
	3/2	В то же время некоторая часть из этих сочетаний может рассматриваться как осмысленная при условии ее появления в соответствующем контексте или для наших целей лучше сказать
11		ситуации. Например, во фразе ПРОХОДНОЙ БУКЕТ ВЫТЕК С ХОЛОДНЫМ ШУМОМ элементы ‘вытек с... шумом’ в такой именно последовательности являются вполне осмерысленными. То же самое можно сказать о попарном сочетании элементов ‘...квадрат пола...’. Такое сочетание вполне возможно в целом ряде контекстов и ситуаций. Не исключена и осмысленность сочетания ‘...летя под полом...’, если, например, речь идет о летучей мыши и известно, что под полом имеется полое пространство.
	3/3	Другие примеры, которые можно было бы привести:
12	a	ЯРКИЙ ГРАД ЧЕРНОТЫ ПЛЕСКАЛ В ГОРУ ТРЕУГОЛЬНИК ТРЕВОГИ или

Table 10. (*continued*)

Test item	Text No./Test sentence No.	Test sentences in minimal context
13	b	СЛАДКОЕ В ПОЛОСКУ СОБРАНИЕ НЕСОВМЕСТИМОСТИ ПРОХОДИЛО ПОД ГЛАДЬ РЕЗКИХ КВАДРАТОВ – начинают проибретать какую-то семантическую информацию в рамках повышенно-эмоциональной речи.
	3/4	Прагматические элементы разного рода начинают . . . в соответствующей ситуации перекодироваться в семантическую информацию. Например, в речи поэта, говорящего о технике
14		стихосложения, фразы ЗУБНАЯ БОЛЬШЕ НАС ВОЛНУЕТ, ЧЕМ ВСЯКАЯ ИНАЯ БОЛЬ или ЯРКИЙ ГРАД ЧЕРНОТЫ ПЛЕСКАЛ В ГОРУ ТРЕУГОЛЬНИК ТРЕВОГИ – приводятся как примеры аллитерации.
15	3/5	УГРЮМЫЙ ДОЖДЬ СКОСИЛ ГЛАЗА – фраза, которая, казалось бы, ничем не отличается от предыдущего примера. Между тем это цитата из одного из ранних стихотворений Владимира Маяковского.

Table 11. Type 2 test items: Sentences with misleading anticipatory cues

Test item	Text No./Test sentence No.	Test sentences in minimal context
	1/1	INDIA: Reports on World Economic Trends submitted by our distinguished Secretary General, the World Bank Report, the Report of the Director-General of FAO, and most recently the Report
1		submitted by THE SECRETARY-GENERAL OF THE UNCTAD on the implementation present a picture of an all-round deterioration in the economic situation of the developing countries.
	1/2	INDIA: . . . We are trying to transform subsistence economies into modern societies with modern industry and modern agriculture.
2		VERY OFTEN WE ARE TOLD THAT ROME WAS NOT BUILT IN A DAY. Of course, we realize that ROME WAS BUILT IN A DALE, that it was built on seven hills, that the road of progress is more often than not a very bumpy business.
	1/3	BOURADI: Nowadays I always seem to be running into trouble. And I think I know why it happens. It is very simple, as simple as a
3		doornail. I am getting old. I AM ON THE WRONG SIDE OF FORTIFICATIONS – as far as my Anglo-Saxon friends are concerned.
	1/4	BOURADI: . . . In the times of the League of Nations a very good friend of mine, the young Mr. Balfour, the famous Lord Balfour always regarded me as a very patient young man. He believed me to

Table 11. (*continued*)

Test item	Text No./Test sentence No.	Test sentences in minimal context
4		be one of the pillars of his country's policy in the Arab world. HE ALWAYS TOOK ME FOR GRANTED. He always seemed to know what to expect of me. He was a very great politician and an excellent diplomatist. HE ALWAYS TOOK ME FOR GRANITE, but, alas, granite I was not. At that time I [was] much more of a piece of softwood than of hard rock.
5	1/6	LIBERIA: . . . THEY SAY THAT THE FIRST STROKE MEANS HALF THE BATTLE. We are engaged in a battle for human dignity and liberty, for a better future of African nations who want to [have a] chance to develop on their own, under the conditions of independence and freedom. May I again remind you that the FIRST STROKE MEANS HAVE THE BATTLE LOST, if you do not deal the second.
6	1/7	CEYLON: Another problem closely connected with the problem of neocolonialism is the one that has recently plagued a number of African states where THE LEGAL CONSTITUTIONAL GOVERNMENTS elected by the peoples of those countries have been overthrown by the Army. The military have conspired AGAINST THE GOVERNED. This is the only way we can describe these coups. By overthrowing the democratically elected Government of the country, the military, often prompted by certain powers outside the country, have violated the will of the people, betrayed them in favour of vested interests outside the country.
7	3/4	Прагматические элементы разного рода начинают. . . в соответствующей ситуации перекодироваться в семантическую информацию. Например, в речи поэта, говорящего о технике стихосложения, фразы ЗУБНАЯ БОЛЬШЕ НАС ВОЛНУЕТ, ЧЕМ ВСЯКАЯ ИНАЯ БОЛЬ или ЯРКИЙ ГРАД ЧЕРНОТЫ ПЛЕСКАЛ В ГОРУ ТРЕУГОЛЬНИК ТРЕВОГИ – приводятся как примеры аллитерации.
8	3/6	В популярной телевизионной передаче недавно прозвучала фраза ЛУЧШЕ МЕНЬШЕ, ДА 'ЛУЧ'. Интересно, что семантическая информация, содержащаяся в этом каламбуре, почти полностью остается скрытой и непонятной вне соответствующей ситуации, когда команда, участвующая в конкурсе, преподносит другой команде телевизор марки 'ЛУЧ'.
9	3/7	Возьмем другой пример: 'ДЕКАБРЬ, ЯНВАРЬ, ФЕВРАЛЬ – САМЫЕ СУРОВЫЕ МЕСЯЦЫ ГОДА; МАРТ, АПРЕЛЬ, МАЙ – МЕСЯЦЫ ВЕСНЫ, ТЕПЛА, НО, ПРАВДА, НЕТ НЕПОСТОЯННОГО НАСТРОЕНИЯ; ИЮНЬ И ЮЛИНА ПЯТЕРКА ЗАТО ВСЕГДА СОЗДАВАЛИ ХОРОШЕЕ НАСТРОЕНИЕ'.

Table 11. (*continued*)

Test item	Text No./Test sentence No.	Test sentences in minimal context
		Это из воспоминаний известного писателя, и это высказывание, когда оно попало в руки литературоведов, оказалось для них кладом, так как оно объясняло происхождение одного из ранних рассказов писателя 'Вторая ночь'.
10	3/8	Несколько ниже в тех же воспоминаниях писатель Н. пишет: 'ВО-ПЕРВЫХ, ЭТО НЕ ИМЕЛО НИКАКОГО ЗНАЧЕНИЯ ДЛЯ СТРАНЫ; ВО-ВТОРЫХ, НИКТО ЭТОГО НЕ ЗНАЛ ДО ПУБЛИКАЦИИ МАТЕРИАЛА; В ТРЕПЕТ ТОЛПЫ, УСЛЫШАВШЕЙ ОБ ЭТОЙ НОВОСТИ, Я НЕ ВЕРЮ. . .'

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