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Editor's Introduction

Elisabetta Fava

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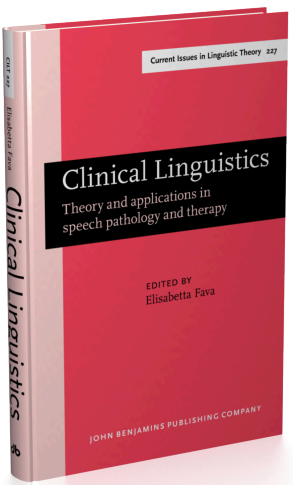

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EDITOR'S INTRODUCTION

The present volume deals with different aspects of speech and language pathology and identifies and re-examines, from various perspectives, a number of standard assumptions in clinical linguistics and cognitive science. It encompasses issues concerning deafness, stuttering, child language acquisition, Specific Language Impairment (SLI), William's Syndromes deficit, fluent aphasia, and agrammatism. Different levels of linguistic analysis are considered: phonetics, phonology, syntax, semantics, and pragmatics. Some of their properties, their formal representations and their interfaces with other levels, are examined closely and clarified.

Researchers typically summarise their individual results in individual contributions, not only in the format of an article (subjects, materials, languages, scores, etc.), but also through critical discussion of the relevant literature. Their work is located in different lines of research: structuralist tenets, generative approaches, and frameworks such as Optimality Theory. The topics discussed are intricate and complex and, at the same time, wide-ranging in scope, but the chapters in the present book offer a fairly comprehensive overview of the complexity and the emerging importance of the field of Clinical Linguistics. The analyses presented here reflect various aspects of the at times fierce theoretical and empirical debates currently ranging over almost every issue discussed, with respect to linguistics and the other cognitive disciplines. Although it is very difficult to do justice to all of the subtleties of argumentation that each of these lines of investigation require, the rather technical issues discussed in this volume have a bearing on questions of considerable interest. They presuppose or imply assumptions about the internal architecture of the language faculty, whose location among other systems of the mind/brain is not at all obvious.

The interdisciplinary complexity of the language/cognition interface is also explored by focusing on empirical data of different languages: among them, Germanic languages (such as Dutch, English, German), Greek, Hebrew, Japanese, Romance languages (such as Catalan, Italian, and Spanish) and Sohsho, a Zulu language.

Despite the different approaches and the variety of problems posed in this volume, there is a common aim to the chapters. The authors piece together various fragments of clinical linguistic research, trying to bring them into a

more cohesive whole, and offer a sense of some of the technical problems that lie at the forefront of research and suggest the kind of answers that their work may provide.

The aim of this volume is to stress the growing importance of the theoretical and methodological tools developed in Clinical Linguistics; to put under scrutiny assumptions taken for granted in previous analyses, which may not be as obvious as they seem; to investigate how even apparently minimal choices in the description of phenomena may affect the form and complexity of the language/cognition interface. What is called 'clinical work' is not separable from the scientific work done by linguists; instead, it should be considered as a component part of General Linguistics. It is at the same time concerned with the actual foundation of the study of linguistic pathologies, together with neurobiology, psychology and neurology and the outer reaches of scientific speculation about the nature of the mind/brain complex with regard to language.

In this perspective, it is very important to defend the continuity of linguistic speculations beyond different frameworks. Such a continuity, which has often been emphasised and is among the goals of the CILT series, of which this volume is a part, is even more important in clinical applications. The study of the relationship between language and the brain, or rather between language disorders and brain lesions goes back to the beginning of the 19th century. Beginning with the pioneering, albeit contentious, work of Franz Joseph Gall (1758-1828), the observations, arguments and opinions advanced in the research of Paul Broca (1824–1880), Carl Wernicke (1848–1905) or Pierre Marie (1853–1940) are still today crucially important, considering the frequency with which they are cited in current research papers.[1] Since then, linguistics has included data and results from speech and language pathology, broadening its empirical basis and reframing data and research in speech and language pathology.

The structuralist research, by reconsidering the traditions of this branch of science, has paved the way for the inclusion of language disorders research within linguistic theory. Considerations of the 19th-century discoveries of the French surgeon and anthropologist Paul Broca can be found in Ferdinand de Saussure's (1857–1913) work. We may also refer to some of the key concepts identified and discussed by Saussure himself, such as the methodological and ontological notions of *langue* and *parole*, which support and justify a large part of clinical linguistic research. They may be considered part of the implicit or explicit distinctions systematically adopted in any clinical work. Thirty years later, Roman Jakobson's systematic search for what was later described as the

[1] See Paul Eling (ed.), *Reader in the History of Aphasia: From [Franz] Gall to [Norman] Geschwind* (Amsterdam & Philadelphia: John Benjamins, 1994).

elementary quanta of language offered tentative generalisations of acquisition and loss of grammatical systems. His hypotheses on child language acquisition and language breakdown, together with his inquiry into language change, are still part of the research into the structuration, restructuration and loss of language. They deal with general tendencies, considered 'lawful' by Jakobson, whose status is still debated in the most recent literature.[2] Empirical evidence in favour or against some of his hypotheses is offered and explicitly reconsidered in this volume.

With Noam Chomsky's work, the impact of linguistic theory on the study of language in wider context as part of the scientific investigation of the architecture of the mind became significant. Many analyses proposed in this volume refer to rules and principles elaborated by Chomsky, although in slightly different frameworks, including various 'minimalist 'versions. One of the main phenomena that has motivated Chomsky since *Syntactic Structures* is the unlimited possibility of expression in human language, what he now calls the discrete infinity of language.[3] In order for speakers of a language to create and understand sentences that they have never heard before, there must be a way of combining some finite number of memorised units into phrases and sentences of arbitrary length. The speaker's knowledge of the language must include a set of principles of combinations that determine which combinations are well formed (and which are ill-formed) and what they mean.

The construction of minimal pair paradigms is one of the major features of experimental design concerning different abstract levels of representations. In their search for rigorous stipulations, linguists, like physicists, biologists or chemists, manipulate the environment experimentally with a central concern on issues of acceptability, as a pretheoretical term, and of grammaticality. The manner in which the linguist discusses pairs of grammatical sentences, juxtaposed with their non-grammatical counterparts, has offered a way to understand sentences, not to reject them. This approach has had a dramatic impact on clinical linguistic applications and in this volume too, this major point, inextricably connected with a cluster of other issues, is reconsidered. Some frequently observed features in the clinical literature, which are registered as 'errors' concerning inflectional properties, determiners, or *Wh*-features, are not considered merely impressionistically: in this volume, the nature of the various kinds of assertions involved in identifying them as errors is discussed con-

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[2] Cf. Roman Jakobson, *Studies on Child Language and Aphasia* (The Hague: Mouton, 1971 [1941]), p. 51.

[3] Cf. Noam Chomsky, *New Horizons in the Study of Language and Mind* (Cambridge: Cambridge University Press, 2000), pp. 3-4, 184.

sistently. The way Chomsky sets up problems is an inducement to reflection and research not only when there is a convergence of methodological tools and theoretical apparatus, but also with differing and contrasting frameworks.

Continuity in linguistic research has been even stronger in the last few decades, as issues on cognitivism and functionalism have been reconsidered, sometimes radically. It is claimed that cognitive abilities and experientially derived cognitive models have direct and pervasive linguistic manifestations, and, conversely, that language structure furnishes important clues concerning basic language phenomena.[4] By stressing that the conceptual setting for the work the linguist is doing is a scientific one, the research focuses on the role of larger contextual frames in describing language disorders: properties of different languages, principles of conversation, and various language functions. An underlying common feature of this approach, which is considered in this volume, concerns the role of semantic and pragmatic factors in assessing clinical data and evaluating therapeutic interventions. Many contributions to this volume show how delicate and difficult the treatment of these data is, involving decisions which do not always find a consensus among researchers, as the debate on the empirical adequacy of many analyses suggests. Elsewhere I have defended the relevance of semantics and pragmatics in controlling linguistic stipulations in non-pathological frameworks: in dealing with descriptive and, more importantly, explanatory adequacy for some well-known phenomena such as interrogative or relative clause distinctions, crucial evidence is offered by reconsidering semantic and pragmatic aspects systematically.[5] Attention to semantics and pragmatics becomes even more crucial when dealing at the same time with both sentences and utterances, and when trying to apply distinctions at the boundaries between the grammatical and the pragmatic properties of what is said in contexts such as the linguistic production of a child with SLI or an aphasic patient. In this volume issues of appropriateness are discussed and considered as instruments to clarify the nature of such deficits. Moreover, it is an important merit of this volume that it discusses the role of semantic and pragmatic factors not only in the evaluation of deficits, but also in the perspec-

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[4] See Ronald W. Langacker, "Reference-point Constructions", *Cognitive Linguistics* 4.1-38 (1993).

[5] Cf. Elisabetta Fava, "Questioning Interrogative Interpretation in Some Indo-European Languages", *Contrastive Semantics and Pragmatics*, vol. I: *Meanings and representations* ed. by Katarzyna Jaszczolt & Ken Turner (Oxford: Elsevier, 1996), 87-110; "*Langue* and *Parole* in Speech Act Theories: Some considerations and a proposal", Langue *and* Parole *in Synchronic and Diachronic Perspective: Selected proceedings of the XXXIst Annual Meeting of the Societas Linguistica Europea (26–30 August 1998, St Andrews)* ed. by Christopher Beedham (Oxford: Pergamon, 1999), 263-283.

tive of the therapy intervention with an attempt to take a larger perspective, opening up a discussion about the consequences and fruitfulness of different approaches.

Another general remark should be made here. In volume contains some currently used terms which may cover empirically and conceptually distinct notions. A notion for which there may be no congruence of criteria is that of 'word': the same term may cover empirically and conceptually distinct concepts such as phonological word, content word, syntactic atom, morphological object, lexical item, etc. Here phonological, syntactic and morphological criteria may be in conflict. Other crucial notions are 'subject' and 'object': although such terms appear frequently in linguistic argumentation (including in this volume), the notions underlying them may be radically different. They may be regarded as relating to semantic roles or considered pre-theoretically. The Relational Grammar model, instead, treats grammatical relations like Subject and Direct Object as primitive and central to grammar, while in the Government and Binding framework, X-bar type constituent structure representations are considered as basic.[6] As a result, the interactions of the properties of Subject and Object, considered in rather different frameworks, may be analysed in rather different ways in this volume.

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After this lengthy introductory statement, let me now offer comments on the individual contributions to this volume. As the table of contents indicates, the volume is organised into five sections.

The first section considers clinical applications in phonology. The data analysed are taken from different populations: child acquisition, deafness, fluent and non-fluent aphasia, and other pathologies. The first essay, by Yishai Tobin (Ben Gurion University), is on *Phonology as human behavior: Theoretical implications and cognitive and clinical applications.* By defending the contribution of Structural Phonology to different clinical data applied to a large variety of languages, he discusses the conflict between the communication and the human factors in language users' search for maximum communication with minimal effort both in the diachronic development and the synchronic state of a language. This conflict is even more keenly felt both in language acquisition,

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[6] Cf. Elisabetta Fava, "Contextualising Corpora in Testing Grammatical Hypotheses: Searching for preposed and postposed syntactic subjects in North Italian and Veneto child-adult conversations", *Lingua, Discourso, Texto: I Simposio internacional de analisis del discourso*, vol. I, ed. by José Jesús de Bustos Tovar, Patrick Charaudeau, José Luis Giron Alconchel, Silvia Iglesias Recuero & Alonso Covadonga Lopez (Madrid: Visor Libros, 2000), 263-280; cf. David Perlmutter & Carol Rosen (eds.), *Studies in Relational Grammar,* vol. II (Chicago: University of Chicago Press, 1984).

where functional errors and processes may be observed, and in the clinical setting, where developmental and pathological errors and processes become apparent. The theory of phonology as human behaviour can explain, in a principled way, the connection and interrelationship between the phylogeny, the ontogeny, and the pathology of the development of sound systems in human languages. Phonotactic skewing in language (diachronic, synchronic, and in developmental and pathological data) reflect the learning process of speakers. Tobin includes data of a hearing child of deaf parents and other series of functional processes from different pathologies.

The second contribution, by Dirk-Bart Den Ouden (Groningen University), is on *Segmental vs. syllable markedness: Deletion errors in the paraphasias of fluent and non-fluent aphasics*. It applies Optimality Theory to the analysis of deletion errors in the paraphasias of fluent and non-fluent aphasics, by comparing the literal paraphasias of fluent and non-fluent aphasic speakers on a repetition task, aimed at determining the influence of syllable structure on error patterns. Markedness is one of the key concepts of this chapter. Where phonological theory has been applied to clinical data, the concept of markedness has often played a significant role. Not often taken into account, however, is the fact that the markedness value of linguistic structures may not be the same at all psycholinguistic levels of processing. What is marked at some linguistic level of representation may well be unmarked at another. The influence of different types of markedness on literal paraphasias may be related to specific psycholinguistic levels of processing and a difference between the pre-phonetic and the phonetic level of processing is hypothesised.

The second section discusses problems of words in deafness and stuttering. Although deafness is a pathology, which is widely discussed in the literature, the phenomena involved are not so often considered with sophisticated linguistic tools, especially with regard to writing systems where some linguistic generalisations seem to be missed. The two papers on stuttering, instead, provide insight into a major area of speech phenomena that have traditionally been treated outside of linguistics proper. Stuttering is typically thought to reflect aspects of an individual's speech output that suggest problems with what are vaguely referred to as the performance systems. As well as other speech disorders demanding an explanation outside of the realm of formal grammar is not too much studied in clinical linguistics.

Roberto Ajello, Giovanna Marotta, Laura Mazzoni & Florida Nicolai (University of Pisa) deal with *The Morphosyntactic fragility in the spoken and written words of the deaf*. They analyse the linguistic production of profoundly deaf Italian people who received an oralist instruction in specialised institutions

and who never wore a prothesis. Their results reveal a discrepancy between a fairly good lexical competence and a poor morphological competence heavily dependent on the input, and a similarly poor syntactic competence, which relies fundamentally on pragmatic communication principles. The not sufficiently mastered morphology, and free rather than bound morphology, is explained on the basis of the process of learning, based mainly on general, not specifically linguistic, cognitive mechanisms. Peter Howell and his research group at University College London have elaborated a new perspective on stuttering, the EXPLAN theory, based on some linguistic insights, and offer an account of how differences between fluent and stuttered speech arise. Although the main focus is on fluent speech control, it is also relevant to the diagnosis and treatment of stuttering.

In the first paper, by Peter Howell & James Au-Young, *The EXPLAN theory of fluency control applied to the diagnosis of stuttering*, the use of 'phonological word' to predict the development of stuttering from childhood to adulthood is discussed. According to EXPLAN, the distinguishing characteristics of stuttering emerge in late childhood; a contrasting view is that people who stutter have incipiently different problems in controlling speech from the onset of language. Diagnosis of the disorder involves measuring and specifying the types of fluency failures that occur in late adolescence in order to see if they have changed in a way commensurate with adult stuttering. Early intervention may not be advisable in such suspected cases, not as long as the child is exhibiting the types of fluency failure common to all children.

The second paper, *The EXPLAN theory of fluency control applied to the treatment of stuttering*, Peter Howell poses the question of how speech can be manipulated, that is, how fluent speech can be made to contain fluency failures and how stuttered speech can be changed to make it more fluent. He proposes a linguistically motivated operant procedure for treating stuttering. A treatment for stuttering is considered successful if it decreases the incidence of fluency failures. EXPLAN theory is more specific as it requires a decrease in the incidence of fluency failures that involve production of parts of words. Howell's results show the reduction in stalling fluency failures may be a result of the operant procedures reducing overall speech rate, thereby cutting down all types of fluency failure. In the course of the treatment sessions, content word (advancing) fluency failures decreased significantly.

The third section concerns morphology and syntax in child language disorders. Four contributions discuss data from Dutch, Greek, Bantu, and Japanese in relation to a major issue, Specific Language Impairment (SLI). This term, applied to a child whose language development is substantially below age level

for no apparent cause, describes delays and/or disorders in the procedure of the acquisition of grammar in the absence of any hearing loss, mental retardation (performance IQ is within normal range), articulator motor impairment or psycho-emotional disorders. The language development of SLI children is characterised by severe problems in the acquisition of morphology and syntax, while their cognitive, motor and social development is considered to fall within the normal range. In attempts to identify the nature of the linguistic deficit in SLI, diverse linguistic models have been proposed. Although most authorities agree that SLI is heterogeneous, there is little consensus about how it should be classified. Based on cross-linguistic research findings indicating that inflectional and derivational morphology is severely impaired in SLI children, several explanatory models of the linguistic deficit in SLI have been developed. They advance different hypotheses on the locus of the deficit in SLI grammar as well as on the nature of developmental patterns followed in SLI, i.e., whether language development in SLI is a normal but delayed procedure or an abnormal process.

The chapter by Roelien Bastiaanse, Gerard Boll, Sofia van Mol & Shalom Zuckerman (Groningen University) on *Verb Movement and finiteness in language impairment and language development* poses two central questions. First, what is the origin of the problems with finite verbs in three populations, normally developing children, SLI children, and agrammatic aphasics? Second, whether is it true that SLI children deal with the problems of the production of finite verbs in the same way as normal children do? Although there are clear similarities between normally developing children and SLI children with respect to the production of finite verbs, the SLI children resemble agrammatic aphasics when it comes to strategies in circumventing their problems. According to the authors, the three populations have the same underlying problem, i.e., verb movement, but different ways to solve it. The normally developing children have problems with Verb Second position and circumvent these problems by inserting dummy auxiliaries, either from their dialect, or from a construction that in adult grammar has a different meaning. There is a clear dichotomy between the errors produced by the normally developing children and the aromatic speakers. The results of the Bastiaanse research group do not confirm the hypothesis that language decay is simply the opposite of language learning, as suggested by Jakobson sixty years ago. Agrammatic aphasics have knowledge of their language that young children have not yet acquired. Although there are certain similarities, given that both populations have problems with verb movement, the solutions are different.

In her contribution *A-bar movement constructions in Greek children with SLI: Evidence for deficits in the syntactic component of language*, Stavroula Stavrakaki (University of Thessaloniki) presents experimental data concerning the production of structures involving *A-bar* movement, that is, relative clauses and *wh*-questions, by Greek SLI children and their normally developing peers. Her results show that the performance of SLI children is qualitatively different from that of the control group. She discusses the status of the underlying linguistic mechanism in SLI and normal grammar, making an attempt to evaluate the implications of her research findings for the core of the theoretical issues surrounding SLI, that is, the locus of the deficit and the way language development takes place in SLI children. Assuming that linguistic development in SLI is an explicit rather than an implicit procedure, she argues that SLI children have problems with purely syntactic operations, such as *A-bar* movement. Within the minimalist framework, this is seen as due to a severe deficit in the in-interpretable features of grammar, that is, features with no semantic interpretation.

Susan M. Suzman (University of the Witwatersrand) analyses *Morphological accessibility in Zulu*. She explores a well-known problem, the vulnerability of morphology in language impairment. Such vulnerability is well attested and varies cross-linguistically according to language type. Such a differential access to morphology, observed by several researchers, is discussed in two case studies of language impairment in Zulu. She investigates the morphological development by considering the multiple and diverse rules of morphology: the range of noun classes, the agreement, and the agglutinative morphemes used by normal and language-impaired Zulu-speaking children. The data considered reflects differential access to morphology depending in part on the obligatory or optional status of morphemes in the language. Considerations on the access to core grammar mediated by language-specific organisation and representation of basic concepts are offered.

The study on *Language production in Japanese preschoolers with SLI: Testing theories* is a joint research project by Yumiko Tanaka Welty (University of Tochigi), Jun Watanabe (Arts Junior College, Osaka) and Lise Menn (University of Colorado). In their investigation they reconsider two claims: the etiological claim, according to which SLI is a unitary disorder with a single cause and the cross-linguistic claim, independent of the etiological claim, according to which SLI (or different SLI's, if there are several) will be underlyingly comparable across languages. That is, if both of these claims are true, then a theory, which fails to explain SLI in even one language, cannot be an adequate theory of SLI in general. If a general explanation offered for SLI cannot

apply to a particular language, but children speaking that language in fact have SLI, then either they have a different type of SLI, violating the etiological claim, or the explanation is inadequate. From this theoretical standpoint, Japanese SLI is discussed. The authors hypothesise that children with JSLI, and by implication, children with SLI in general, have a general language-processing deficit, which means that they are under 'overloaded' conditions.

In the fourth section, issues of grammar and cognition are discussed. The linguistic and non-linguistic accounts, the interface of grammar and pragmatics in the characterisation of some deficits are reconsidered. Among the assumptions going back to the early 1950s is that there is a component of the human brain dedicated to the language faculty, which interacts with other systems. After the publication of Jerry Fodor's *Modularity of the Mind* in 1983, issues of modularity have made a profound impact on linguistic research. One major issue is whether pragmatics should be considered a module of the grammar or not.[7] The evidence for the nature of genetic deficits is offered mainly by analysing SLI and Williams Syndrome (WS). WS is a rare genetic disorder, which presents a variety of cardiovascular difficulties, failure to thrive in infancy, etc. The neurolinguistic profile is characterised by relative strengths in language, facial processing and social cognition, and profound impairment in spatial cognition, planning, and problem solving. *Testing linguistic concepts: Are we testing semantics, syntax or pragmatics?* is the question raised by Leah Paltiel-Gedalyovich (Ben-Gurion University). She investigates what kind of knowledge is being assessed in the variety of standardised tests of language acquisition available to speech/language clinicians, which are purported to assess children's linguistic, i.e., syntactic or semantic, knowledge. In particular, she considers the linguistic knowledge necessary to comprehend and produce co-ordinated sentences, and the interaction of this knowledge with pragmatic knowledge. She argues that in some cases it is pragmatic, rather than syntactic or semantic knowledge, which is required to complete test items successfully. Test items may reflect the interaction between the semantics of co-ordinators and the influence of the Grice's pragmatic principle of *quantity*. It appears that the failure of children to complete the task successfully reflects impaired pragmatic and not impaired syntactic ability. An analysis of a failure as a pragmatic failure as opposed to a linguistic failure will affect the direction of a treatment program. In order to assess children's communicative abilities accurately, and

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[7] On the two opposite claims and their different underlying assumptions, cf. Asa Kasher. "Pragmatics and the Modularity of Mind". *Pragmatics: A reader* ed. by Steven Davis (Oxford: Oxford University Press, 1991), 567-582; and Deirdre Wilson & Dan Sperber. "Pragmatics and Modularity", *ibid.*, 583-595.

to design appropriate remediation programs for them, it is crucial to analyse accurately the tools of assessment. The need for pragmatic knowledge to complete test items, which purport to test purely linguistic knowledge, challenges standard interpretation of these tests. However, the usefulness of these tests is not denied. Rather, it is necessary to recognise the various skills needed in order to use test results appropriately in diagnosis and in the planning of the treatment of language delayed and disordered children.

The contribution by Dušana Rybárová (Slovak Academy of Sciences) on *SLI and modularity: Linguistic and non-linguistic explanations* argues that the current status of the debate between the proponents of linguistic and non-linguistic approaches to explanation of SLI is characterised by a severe divide between these two approaches. Both are outlined from the point of view of one of their proponents, so as to show their premises and weak points in relation to the modularity issue. She argues that, although claiming to be completely different, both the linguistic and non-linguistic accounts are based on the same idea of 'strong modularity', characterised as nativist, static and non-interactionist. Such understanding of modularity causes them to appear as mutually exclusive. To her, the concept of 'strong modularity' seems to be an unproductive and inappropriate view in accounting for the broad array of SLI symptoms, symptoms that probably result from different primary deficits. Rybárová argues in favour of a possible way to bridge the gap between those two positions, by suggesting the abandonment of the 'strong modularity' thesis in favour of a finer-grained view on modularity, 'weak modularity'.

Vesna Stojanovik, Mick Perkins & Sara Howard (University of Sheffield) debate *The language/cognition interface: Lessons from SLI and Williams Syndrome*. Despite years of research in this area, the issue of language/cognition dissociation as evidenced in cases of WS and SLI is far from being resolved. According to Stojanovik, Perkins & Howard, there have been hardly any studies which consider in detail the linguistic and non-linguistic functioning in the same subjects with WS or SLI, respectively, or which provide linguistic and non-linguistic data from both populations with WS and with SLI. They investigate the complex patterns of impairment in WS and SLI, highlighting aspects of the language/cognition interface. The question addressed is *what* aspects of language might develop independently, and whether pragmatics belongs to the linguistic or the cognitive system or whether it is a domain where both linguistic and cognitive modules interact. When detailed information about linguistic, cognitive and communicative functioning is obtained for the same subjects, the two profiles may not be as opposed to each other as has been claimed in the literature. Their results suggest that the language/cognition interface is still *terra*

incognita and may have been approached too simplistically up until now. This has important implications both for linguistic theory and for speech and language therapy. It is extremely important for clinicians to be aware of the degree of individual variation possible in conditions such as WS and SLI. Given the current state of our knowledge about these language deficits, intervention programmes should be sensitive to the unique interplay of linguistic, cognitive, and pragmatic abilities in each individual, and should not assume that all cases of WS and SLI conform to an even relatively homogeneous profile.

The final section is devoted to acquired language problems subsequent to cerebral damage, to be precise non-fluent aphasia, associated with lesions in the frontal part of the left cerebral cortex, and fluent aphasia, associated with lesions in the posterior areas of the left cerebral cortex grammatical structure. The data discussed derive mainly from Catalan, Dutch, Spanish, English, German, and Greek. In *Grammar and fluent aphasia* Susan Edwards (University of Reading) offers some evidence regarding the many frequently spurious generalisations on fluent aphasia. These generalisations are due to the fact that the much of the research is not sufficiently linguistically oriented. Fluent aphasia is usually characterised as a disorder of lexical-semantic access. Any problem in sentence structure is seen as arising from difficulties in accessing lexical items which in turn arise from either semantically based problems or from problems in phonological representation. Although these lexical problems are characteristic of all fluent aphasic speakers, lexical deficits cannot account for all the errors found in fluent aphasia. The view that grammar is preserved in fluent aphasia and that any errors observed result from faulty lexical retrieval has gone largely unchallenged, perhaps because the unequivocal lexical errors in fluent aphasia are more obvious, often more 'flamboyant' and more frequent than the subtle, less frequent, grammatical deficits. On the contrary, the evidence offered by the fluent aphasic subjects described by Susan Edwards is not so neat. They were better at sentence construction than typical agrammatic patients and they produced utterances that were considerably longer than agrammatic speakers can produce. However, the errors made by the fluent aphasic speakers were of the same kind if not the same magnitude as those made by agrammatic speakers. The data discussed support the conclusions that, in the same way as non-fluent aphasic patients, fluent aphasics have faulty access to their grammar. The assumption that syntactic abilities are intact in this particular aphasic population can no longer be assumed.

Anna Gavarro (Universitat Autònoma de Barcelona), in *Failure to agree in agrammatism*, focuses on the linguistic evidence provided by agrammatism, which has a bearing on the evaluation of competing linguistic theories. She

explores how linguistic theory informs the study of agrammatism, especially the empirical domain of inflection, within competing Minimalist theoretical constructs. While the deficit of inflectional markers, including case markers, and function words associated with aphasia was recorded long ago in the scientific literature, the first approach to inflectional disorders in agrammatism within generative grammar occurred in the 1970s. Results considering phonological clitics, phonological words, morphological objects and syntactic atoms are debated: the question is whether errors derive from syntactic impairment rather than a morphological or phonological impairment. The categories affected by this syntactic impairment are tense, aspect and person on verbs, gender or number on Determiner/Noun categories, or are related to displacement of constituents within a structure. Gavarro points out that asymmetries may arise between production and comprehension. Grammaticality judgments in agrammatic subjects are not central to the thesis she defends. She attempts to characterise the disruption that affects grammatical derivations; the reasons why this disruption is not apparent in all cases remain a topic for future research. According to her analysis, inflectional and word-order deviations constitute a natural class, and agrammatism results in part from inability to apply the operation *Agree*. This hypothesis lends support to the latest version of Chomsky's minimalist position over previous ones.

The Verb and Sentence Test: Assessing verb and sentence comprehension and production in aphasia by Judith Rispens & Roelien Bastiaanse (University of Groningen) and by Susan Edwards (University of Reading) offers some crucial reasons for constructing a new test for the diagnosis and treatment of aphasics, the *Verb and Sentence Test* (VAST), assessing verb and sentence comprehension and production in aphasia. From clinical experience and theoretical investigations, it has become clear that disorders at the level of *verbs* and *sentences* are frequent in aphasic patients. Verbs play an important role in sentence comprehension and production; a disorder in processing verbs therefore has a great effect on linguistic processing and, very importantly, on communicative ability. There are currently few standardised assessment materials, which systematically investigate disorders at the level of verbs and sentences. It seems that a gap exists between neurolinguistic findings and clinical application of this knowledge. The test battery for verb and sentence processing developed uses linguistic insights and is theoretically motivated; it is regarded as suitable for different types of aphasic patients and it is clinically relevant. The only tasks which have been included are those which reveal impairments, which have been described adequately in the literature and for which therapy programs or methods exist. These principles have led to the inclusion of ten sub-

tests which assess the processes involved in comprehending and producing verbs and sentences: verb retrieval, processing information regarding the grammatical and thematic roles, 'mapping' of thematic roles onto grammatical roles and, for verb and sentence production, retrieving morpho-syntactic features such as subject-verb agreement inflection. This evaluation of sentence comprehension and sentence production deficits is constructed to apply to many different languages. The second part of the study analyses the first two case studies of the application of the VAST test to Dutch and English patients. Directions for therapy are also proposed.

Esther Ruigendijk (Utrecht University) focuses on *Case assignment as an explanation for determiner omission in German agrammatic speech.* She offers a linguistic, psycholinguistic, and aphasiological background to agrammatic aphasics. Her thesis is that the production of determiners and pronouns is not impaired because they are grammatical morphemes, but because their realisation is dependent on the production of finite verbs. The basic problem is the production of finite verbs; poor determiner and pronoun production can then be considered a side effect. The distinction between functional categories is at the heart of present-day grammatical theory, but plays an equally central role in, among other topics, theories on language acquisition and aphasia. In the course of time, various diagnostic criteria have been identified which distinguish one class from another: e.g., productivity, distribution, and absence versus presence of semantic content. Her results on German determiner production and case assignment demonstrate that once the case-assigning verb is realised, the production of determiners is possible in agrammatic aphasics. This means that determiner production as such is not impaired, but rather that the problems with determiners are closely related to those of the production of verbs. When no case-assigning verb is realised, no determiners can be produced. Incorrect or incomplete retrieval of the lemma information of the verb can account for case substitution errors that are made with object noun phrases. Ruigendijk's results demonstrate that once the verb is realised, the production of determiners is less impaired in agrammatic aphasics who omit determiners in their spontaneous speech production. This has interesting implications for the treatment of agrammatic patients. Training in the production of isolated determiner phrases cannot be successful, since these are related to verbs. It is better to train aphasics in verb production, as the results of the present study suggest that this will increase the production of complete noun phrases.

Kyrana Tsapkini, Gonia Jarema & Eva Kehayia (University of Montreal) discuss *The role of verbal morphology in aphasia during lexical access: Evidence from Greek.* They explore the role of regularity in language breakdown

by investigating how these phenomena are manifested in the performance of Greek-speaking aphasics. The dissociation between regular and irregular morphology in aphasia has been documented in different languages. Broca's aphasics were found to be impaired in their application of the past-tense inflection while having no difficulty with irregular stored forms. Conflicting results have been obtained in different languages on the question of whether regular and irregular inflection can be described as two qualitatively different operations, or a single mechanism based on statistical probability or associative memory. The issue addressed is whether morphological regularity in languages allows the dissociation of the effects of morphological regularity from those of form and semantic similarity. This would allow the maintenance of the claim of universality of the distinction between rule-based and storage mechanisms in language processing and breakdown. Greek is a language that offers the opportunity to investigate morphological regularity while keeping form and meaning overlap between base and past tense forms constant across regular and irregular forms. First, the study of morphologically regular and irregular verbs in Greek allows for the addressing of the issue of morphological regularity *per se*, independently of form and semantic considerations. Second, it clarifies whether the difficulties that Greek-speaking aphasics have with the past tense are due to the different morphological operations postulated, or whether they reflect task-specific deficits related to the lexical access procedures involved in each task. It is the very presence of a stem-allomorph that marks the most 'irregular', in the sense of idiosyncratic and unpredictable, past tense formation, the authors note.

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In conclusion, this volume investigates relevant intersections among different linguistic frameworks, languages, clinical approaches, and pathologies. There is unity, however, in the great effort made to provide some key aspects of the framework adopted and to discuss general problems posed by it. The theoretical arguments advanced and the empirical evidence proffered are bound to offer deeper insights into the factors that shape the nature of language. In this perspective, theoretical linguistics has been and will continue to be of particular significance for the study of speech pathology and speech therapy, giving it new life and scope. At the same time, it can be said that clinical research has offered new perspectives on investigative techniques and suggestions as to how to revise theoretical and methodological tools.