In his abstract John C. L. Ingram points out the three main questions that the field of Neurolinguistics seeks to address: ‘What biological factors make human communication possible? How do we process and understand human languages? How does brain damage affect these mechanisms and what can this tell us about how language is organized in the brain?’ Hence Ingram asserts, ‘This book is about language processing in the human brain, and more specifically what happens to spoken language when certain areas of the brain are damaged’ (Ingram 2007:3). He engages a wide range of reputable works and high-tech clinical and experimental studies, introducing all new issues and terminology gently, with good parenthetical helps to explain the technical jargon.

The book has five parts consisting of 17 chapters in total. Ingram launches the first part with a comprehensive overview of the theory of the co-evolution of language and the brain. He observes: ‘The brain has doubled in size in less than one million years’ (Ingram 2007:5). To make it more relevant to language Ingram notes: ‘The areas of the brain that underwent greatest development appear to be specifically associated with language…’ (Ingram 2007:6). After co-evolution he discusses the foundational concepts and issues in Neurolinguistics, which include: the linguistic competence components (language universals), the neuro-anatomy of language and the modularity of language.

On the highly debated issue of modularity of language, Ingram objectively examines the models of the leading theories, namely those offered by Noam Chomsky, Jerry Fodor and Max Coltheart, which can all be designed as computer programs to simulate human language processing. Central to these theories are four key questions:

Are different aspects of language located in different regions of the brain (the localization hypothesis) or are language abilities distributed throughout the whole brain (the holistic view)?…Can different components of linguistic competence be separated out from one another and be seen to function more or less autonomously (the modularity hypothesis)?
Or is it the case that different aspects of language and language related cognitive functions interact with one another to such an extent that they cannot be separated (the interactionist position)? (Ingram 2007:12)

Over the past couple of decades numerous complex experimental and clinical investigations have been carried out, based mainly on two competing models: the modularity and interactionist/connectionist models, in order to provide answers to the above questions. To furnish the reader with a background for understanding these theories, Ingram generously provides relevant information from scrupulously designed research on natural language processing, as he vividly describes it:

Psycholinguists and neuroscientists have devised behavioral and neuroimaging techniques to fractionate the different stages of language processing: from the instant the auditory system reacts to the acoustic signal of speech, to the few hundred milliseconds that it takes to complete linguistic decoding of speaker message. (Ingram 2007:5)

In discussing various aspects of language processing Ingram brings several exciting discoveries into the limelight. Only two examples can be cited here:

1. The Speech mode hypothesis (SMH). One version of this theory claims that …speech is special: namely, that specialized perceptual mechanisms dedicated to the task of speech recognition, and in some sense hard-wired into the brain, are required…at least for certain aspects of speech recognition… (Ingram 2007:115)

2. The mirror neurons in the brain cortex are selectively activated by biologically significant visual or auditory stimuli. Ingram reports:

Two studies used the technique of transcranial magnetic stimulation (TMS) to reveal subliminal levels of motor activity in relevant speech muscle while subjects listened for particular phonemes in spoken words, pseudo-words and non-word auditory stimuli. (Ingram 2007:171)

The vigorous research on a normally functioning brain and clinical studies conducted on a full range of language deficits that result from damage to language areas of the brain, have not as yet produced a single model which can completely capture all that is involved in natural language processing. At one point Ingram suggests:

…in the light of evidence which suggests that syntactic processing has much in common with lexical processing, indicating that what may be required is a single unified framework –‘a theory of everything’–which encompasses both lexical and compositional routes for mapping sound to meaning. (Ingram 2007:256)

Indeed, Ingram eventually commends a new approach, the ‘embodied cognition hypothesis’ as pointing to a potential way forward for research in natural language processing, as he puts it:
In summary the embodied cognition hypothesis and its corollaries attempt to define a way of thinking about cognitive processes which seems more compatible with how the brain appears to represent information than the tired digital computer metaphor of previous generation of cognitive psychology. (Ingram 2007:377)

Though this book is primarily intended for students of cognitive linguistics and speech pathology, its multidisciplinary research covers issues of practical importance for several other fields. Here are just a few examples:

1. For descriptive linguists, the discussions of functional aspects of the components of universal grammar, in normal persons and those with brain damage, provide more insight and fresh interest in understanding the linguistic domains. Examples are the interesting discussion on categorical listening and the notion that phonological targets are somewhat abstract or phonetically underspecified, etc., which I would recommend reading.

2. For the educational planners/policy makers, especially in a multilingual context, Ingram’s brief focus on reading and writing may have serious implications.

   Reading and writing may be described as secondary or derived language competences…Also reading and writing can only be taught to children who have substantially completed primary language acquisition. (Ingram 2007:53)

John C. L. Ingram presents an extensive exploration of cutting-edge information and arguments from a multi-disciplinary study which will be greatly beneficial as a text book in the field of Neurolinguistics and a useful resource in related fields such as Psycholinguistics, Descriptive linguistics, Psychiatry, etc.