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Chapter 1 : On recursion. - PDF Download Free

These differences have often been neglected or otherwise discredited in favor of the similarities that have been a target for novel proposals regarding the internal structures of noun phrases and clauses.

Holt, Rinehart and Winston. Origins, Concepts, Methods, and Aims. Of Minds and Language: Di Sciullo, and C. Case Studies in Semitic and Romance Languages. Towards an Elegant Syntax. The Architecture of the Mind. American Mathematical Society, The Structure of Language: Readings in the Philosophy of Language. Aspects of the Theory of Syntax. The Neuropsychology of Language: Essays in Honor of Eric Lenneberg. Lectures on Government and Binding: Pesetsky eds Is the Best Good Enough? New Horizons in the Study of Language and Mind. A Life in Language. On Nature and Language. Oxford University Press, The Generative Enterprise Revisited: Mouton de Gruyter, The Sound Pattern of English. Walter de Gruyter, Bush, and Eugene Galanter eds. Types of A-bar Dependencies. Adverbs and Functional Heads. The Cartography of Syntactic Structures 4. Proper Subset Relation and Concord: Agreement in Abruzzese Possessive Copular Constructions. Proceedings of North East Linguistic Society Syntactic Parsing Strategies in Italian. Morphology, Phonology and Acquisition, Amsterdam: The Biological Nature of Human Language. Afroasiatic Studies in Memory of Robert Hetzron. Cambridge Scholars Publishing, A Transformational Approach to English Syntax. Root, Structure-Preserving and Local Transformations. Derivations in Minimalism, Cambridge, UK: Holt, Rinehart and Winston, The Language of Thought. The Modularity of Mind. A Theory of Content. Where Cognitive Science Went Wrong. The Psychology of Language. Economy and Semantic Interpretation. Phrase Structure Composition and Syntactic Dependencies. Foundations of Language 6: Verlag Hermann Pohle, Band I. University of California Press,]. A Theory of Category Projection and its Applications. Approaches to Language Typology. Phase Theory and Parametric variation. From Semantics to Morphosyntax. Oxford University Press, New York. The Santa Barbara Lectures. Language in the Americas. Indoeuropean and its Closest Relatives: Prolegomenon to a Theory of Argument Structure. Segmental Phonology of Modern English. Methods in Structural Linguistics. University of Chicago Press. Perspectives on the Philosophy of Donald Davidson. Mind Design and Minimal Syntax. A Minimalist Theory of Construal. A Theory of Syntax. Consciousness and the Computational Mind. Patterns in the Mind: Language and Human Nature. Basic Books Jackendoff, R. Brain, Meaning, Grammar, Evolution. Essays on Mental Structure. Exploring the Biology of Language. Connectedness and Binary Branching. Kluwer Academic Publisher Kayne, R.

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Chapter 2 : Innocuousness of {XP, Yp} as a Root Clause | Miyoko Yasui - racedaydvl.com

Along with the noted similarities that have prompted much important study in the development of the theory of phrase structure and movement, nouns and verbs (and their projections) exhibit remarkable differences.

Hauser 3 , Ian G. However, the concept of recursion as articulated in the context of linguistic analysis has been perennially confused. These authors put forward the hypothesis that what is uniquely human and unique to the faculty of languageâ€"the faculty of language in the narrow sense FLN â€"is a recursive system that generates and maps syntactic objects to conceptual-intentional and sensory-motor systems. As we explain, the recursiveness of a function is defined independent of such output, whether infinite or finite, embedded or unembeddedâ€"existent or non-existent. And to the extent that embedding is a sufficient, though not necessary, diagnostic of recursion, it has not been established that the apparent restriction on embedding in some languages is of any theoretical import. Misunderstanding of these facts has generated research that is often irrelevant to the FLN thesis as well as to other theories of language competence that focus on its generative power of expression. This essay is an attempt to bring conceptual clarity to such discussions as well as to future empirical investigations by explaining three criterial properties of recursion: By these necessary and sufficient criteria, the grammars of all natural languages are recursive. More generally, from a logical formalism of finitely specifiable axioms and theories, such a procedure would decideâ€" i. It only remained to formalize the intuitive concept of computability. Thus concluded the Hilbertian program. However, of greater significance than this negative result was that, in its application to the decision problem, www. In a stepwise process analogous to proof construction, the machine deterministically generates outputs analogous to theorems given inputs which, with initial conditions, form a set analogous to axioms by returningâ€"recursingâ€"intermediate results analogous to lines or lemmas according to its programmed rules. It is of fundamental importance to understand that the non-arbitrary set generated by a recursive function qua Turing machine need not be represented as an output; to recursively generate a set is not to produce it. The function is defined in intension: This notion of intension is realized in a Turing machine as rules for conditional branching: For example, independent of its potential application to particular inputs, a rule of arithmetic determines generates a range of numbers i. It is because of the aforementioned insights from Turing that we define language as I-language: I-language is to be distinguished from E-language: The extension of I-language can be defined as the set of objects it generates and thereby constrains i. We can further illustrate the I- v. E- distinction in the case of language by drawing an analogy to arithmetic. The latter may not be represented anywhere internally or externally ; it is non-etheless the set generated by the former in the sense that the extension is deterministically specified by the intension. If I-arithmetic were encoded as a computer program a finite amount of information , the standard ontological assumption in computer science and information theory would be that E-arithmeticâ€"which would require an infinite number of bits to fully enumerateâ€"is compressed into the program. If I-arithmetic were to output a set, the members would be those and only those that satisfy the specified conditions i. Identical logic defines I-language into which E-language is compressed: The range of a recursive function can be infinite, as with the arithmetical rule. The computation can run to infinity, but its rules are finitely specified and at any step in the computation only a finite amount of tape has been processed. The finiteness of the machine is fundamental: Therefore, it is necessary to define the set intensionally by a finite procedure a rule to derive or predict 1 Given that recursive procedures define linguistic and mathematical cognition, investigations into the degree of neural overlap of these domains could bear upon the FLN hypothesis. Frontiers in Psychology Language Sciences On recursion what things satisfy the conditions to be subsumed in the set or equivalently to generate describe all and only those things the set subsumes. In other words, if a set is non-arbitrary, then there must exist a reason why it subsumes all and only those things it does; and the rule is the reason. With this elegantly elementary model of computation, the general concept of a formal system was established. These systems therefore constitute the ontological and

epistemological foundations of the formal and natural sciences. We next explain the significance of this rather dense definition for our discussion. The second and third propertiesâ€”the function is defined in terms of preceding functions or reduces to the successor functionâ€”are those of induction, in its two senses: The original formulation of a generative grammar was not as a Turing machine but as the formally equivalent rewrite rules of Post The strong generation of structures studied in formal linguistics is contradistinguished from the weak generation of strings studied in formal language theory; and only strong generation is of relevance to research on natural language [see Chomsky on the inapplicability of January Volume 4 Article 2 Watumull et al. In other words, a grammar strongly generates hierarchically structured expressions and weakly generates the corresponding strings. It is a structure, not a string, that represents grammatical information. This information can, in turn, be mapped via formal semantics and morphology-phonology to the conceptual-intentional and sensory-motor systems. This mapping is supported by the fact that one string can correspond to many structures in a many-one function. Consider the string the boy saw the man with binoculars. This string is two-ways ambiguous because it corresponds to two possible structures representing two possible interpretations: In this sense, and contrary to Fitch and Friederici , we do not see too many applications of formal language theory to have been all that profitable in clarifying concepts, formulating and testing hypotheses, or opening new frontiers of research. However, there are important exceptions e. Definition by induction is related to the form of recursion as mathematical induction from bounded to unbounded: This formulation is analogous to the successor function that, like other similar functions, has the potential to generate an unbounded output. We turn next to a discussion of bounded and unbounded outputs, and their relationship to the underlying generative function. Three facts are critical to proper understanding. First, a recursive function may generate an infinite set yet only produce a finite output because of arbitrary constraints. Analogously, the grammar of a language L generates L in its infinityâ€”i. Equally arbitrary to physical limitations are formal stipulations: Second, because the range of a recursive function is by definition non-arbitrary, any arbitrarily limited output can be expanded in a principled manner. Such programs are explicitly rejected in connectionism e. Whether these uniquely human programs emerged specific to language and were thereafter exapted to other domains e. Whatever their origin, these recursive programs provided our capacity for thought and expression with a uniquely powerful upgrade. Third, the representation extension of the set generated is immaterial to the form intension of its generation. For instance, given that recursiveness is a property of the procedure applicable to any input rather than a property of potential output, equating recursion with syntactic embedding is simply a fallacy. A computable function is necessary to derive sets; a list is epistemologically and, more importantly, ontologically meaningless. That the function is defined inductively enables it to strongly generate increasingly structured expressions. And with mathematical induction, the computable generation of such expressions is unbounded. January Volume 4 Article 3 Watumull et al. In particular, we discuss why claims of languages lacking recursive expressions, though of interest, say nothing about recursive functions because output systems are simply not relevant to the instantiation of this capacity in all human brains. Conversely, we discuss why claims that animals are capable of processing embedded expressions, though interesting, do not take down the uniqueness claim that underpins the FLN thesis. Embedding, though of interest as a computational capacity, is not synonymous with recursion, and nor is embedding part of the original FLN thesis. This quote embodies the conceptual confusions discussed in the earlier sections above. First, as discussed in section Three Properties of Recursion, to understand recursion as embedding is actually to misunderstand recursion: But even accepting properties of the output as indicative of a recursive mechanism, embedding is not dispositive, as linguistic typologists have long known: Second, any limitations on depth of embedding in structures that FLN does generate can only be arbitraryâ€”i. This function is demonstrably computable: The function is defined by induction: And finally, the function is mathematically inductive: In short, this function is recursive. Ultimately, any boundedness is demonstrably arbitrary as proved by the undisputed fact that recursion is unbounded in some i. The number faculty is analogous: But even if there were variation, recursion in some form or another would need to be

encoded genetically because it cannot be learned even in principle. If the capacity for recursionâ€”computability and inductive definitions and mathematical inductionâ€”were knocked out of the genome in toto, the phenotypic effects would be catastrophic: January Volume 4 Article 4 Watumull et al. As in any claim about uniqueness, comparative research is requiredâ€”in this case, comparing the capacities of different species as well as different domains of knowledge other than language within our own species. To suggest that only humans are endowed with recursive capacities that map to the sensory-motor and conceptualintentional systems is to formulate a challenge for comparative work, a challenge that requires critical observations and experiments. To this end, Fitch and Hauser sought to develop a research program that would potentially enable a test of this hypothesis. Due to its computational rigor and clarity, they started with the Chomsky hierarchy Chomsky, a. More specifically, they designed an experiment based on two features that would facilitate comparison with humans, both young and old: This was a test of computational power, not the three criterial properties of recursion; establishing the former is necessary to exploring the latter. Based on both the introduction to this paper, and its conclusions, independently of the particular results, not even the most positive evidence would serve to knockout the FLN thesis. Rather, this experiment was designed to provide a different approach to the problem of comparing across species, one that might enable a more direct comparison between humans and non-human animals. Results showed that cotton-top tamarins spontaneously processed the finite-state grammar i. Fitch and Hauser concluded that the generative capacity required to fully process a phrase-structure may have been the bottleneck that we alone broke through. Unfortunately, in our opinion, most of these studies misinterpreted the reasoning behind the Fitch and Hauser experiments, both in terms of methodological design as well as theoretical implications. Specifically, the majority of studies that followed used massive training, as opposed to spontaneous methods. Though these methods can show what an animal can do under these conditions thousands of trials with reinforcement , these are not the conditions in which human children acquire language. No child forms a fully functional grammar based on exposure to 50, exemplars from an extremely narrow set of inputs, and then differentially reinforced for correct responses. This was an idea long ago put forward by Skinner , and soundly taken apart by Chomsky b. This is not to say, however, that the www. Thus, the results using either method gain little traction in terms of meaningful comparison with human ontogeny. In addition to the methodological departures, most of the studies using the Chomsky hierarchy as in Fitch and Hauser have falsely concluded that evidence of successful processing of embedding constitutes evidence against the FLN hypothesis. But as noted above, this conclusion simply does not follow: Furthermore, all of the published work on embedding, even in the best cases, shows nothing like the structured expressions that FLN strongly generates.

Chapter 3 : Linguist List - Reviews Available for the Book

Fukui, Naoki and Mihoko Zushi. "On certain differences between noun phrases and clauses". In Essays on Nominal Determination,

Chomsky argues that the labeling ambiguity needs to be resolved for the SO to enter into computation. One of them is the well-known restriction on sentential subjects in English exemplified below: If the same labeling applies to 4b , the example is expected to be grammatical contrary to fact. C is too close to another instance of C. As their name suggests, they appear sentence-finally but not after embedded clauses as shown in 5. Concentrating on 5a and 6a for the moment, they show that the SFPs can attach ambiguously to the subject or the whole sentence. C merges with TP without a subject as in 7a , thereby attracting the finite verb as the unique least embedded head as in 7b. The symmetry here is argued to be broken by morphologically attaching SFP to either phrase. SAI, however, is a case of internal head merger and thus should be analyzed on a par with internal phrasal merger like wh-movement and external merger of lexical items like if. In the latter two types of merger, the presence of a specific category is not presupposed for the merging element. In wh-movement, the CP edge has no intrinsic category; the category of a moved phrase becomes its category as shown in 8. In the case of merging a TP and a complementizer like if, the minimalist assumption is that there is no node C provided by phrase structure rules. Then, there should be no node C before the application of SAI. I will assume that SAI applies to 9b instead of 9a. What do you think that Mary bought? One might consider it strange that the interpretability of a feature changes depending on its position. If the feature at stake is a clause-type feature like [Q], however, it is reasonable to analyze it as illicit or uninterpretable within a TP but as licit or interpretable in the position to type it just as the complementizer if, which inherently has [Q], should externally merge with a TP to type it as interrogative. The head of the subject in 9b does not move simply because all of its uninterpretable features have been checked and are invisible for movement. My version of the upward feature sharing approach is based on the following assumptions: It can be bundled with a finite tense feature or inherently appears in a C like if. The latter requirement eliminates the need to posit EPP features on the checker. It can be bundled with a finite tense feature or independently appears under Cs. SOs labeled by [WH] must merge with wh-phrases. Tense features can be bundled with Vs or inherently appear in English modals and infinitive to. Tense features must merge with vPs. Statements ii of 12 - 14 are essentially the same as various criteria proposed, inter alia, by May and Rizzi , and presumably need not be stated explicitly in the sense that they are interpretive requirements at the C-I interface. Statements i mention two ways to satisfy the corresponding conditions ii: As for crosslinguistic variation in the distribution of wh-phases, Boskovic assumes that English wh-phrases can have an uninterpretable feature represented as [uK] in 10b , while [K] is always interpretable in in-situ wh-phrases of languages like Japanese and uninterpretable in multiple-wh languages like Bulgarian. I will adopt these assumptions in the subsequent discussion. The feature to drive each merger is bold-faced. If are does not contain [Q], the derivation stops here; it is a root declarative clause. If [Q] is bundled, are must move in the position to have 15d in its domain as in 15e to satisfy the criterion 12ii ; it is a root interrogative clause. The SOs formed in 15a, b, c, e are all labeled by are, but distinct features of are have been active in resolving their uninterpretability at each stage. The SO in 15d can merge with overt complementizers such as that and if, which yields embedded declarative and interrogative clauses, respectively. An interesting possibility is to merge the inverted structure 15e with an interrogative predicate like wonder as in This is unacceptable in Standard English presumably due to a c-selectional violation: There are various dialects in which 16 is acceptable. The speakers of those dialects allow wonder to s-select any category as long as it contains [Q]. The resultant SO can be taken as labeled by [WH]. Internal merger of what with 17b as in 17c deletes [WH] as well as its own uninterpretable feature [uK]. As for a subject wh-question like 18a , the Vacuous Movement Hypothesis naturally follows from the feature composition of are in 18b. Which eagles are flying? This step is omitted here. I tentatively assume that

the uninterpretable counterpart of [Q] i. So I have a basis to distinguish matrix and embedded clauses in terms of their clausal sizes. In this connection, consider the following: It is illegitimate unless it turns into a coordinate structure: Given the grammaticality of 20a , the relation between C and TP in 20b should be innocuous. What is offending, then, should be the relation between C and CP. I argue that 20b violates some kind of anti-locality: I claim that two instances of that in 22b constitute a violation of the anti-locality proposed to filter out 20b. A sentential subject is not allowed in V2 languages presumably because the matrix clause is uniformly CP see Koster and subsequent work. This suggests that ka lacks [WH]. If [WH] is entirely absent from the Japanese lexicon, it follows that [WH] is not involved in relatives as well see Fukui and subsequent work. In fact, Murasugi and others argue convincingly that relative clauses in Japanese are TPs. As has been exemplified in Section 1, they can appear not only in the root context as in 5a but also after major phrases as in 6a,b. The SFPs, however, can attach to more deeply embedded phrases as demonstrated in 6b. How can my first approximation be extended to 6b? A heavy pause is necessary after each of the phrases with the SFPs in 6a,b. Actually, a heavy pause after the SFP rescues 5b , which is interpreted more like two separate sentences in Sono hon-wa kore da. The book is this. Hanako-ni kossori hon-o age-ta. Note, furthermore, that da and desu, which are non-polite and polite forms of copula respectively, can be added before ne and yo in Not surprisingly, these copulas can be added before ne and yo in 6a,b as shown below: Taro-ga Hanako-kara hon-o moraw-ta-ka watasi-wa sir-anai. The copulas and the SFPs in 28 seem to require TPs to be nominalized with no, which is presumably related to the adnominal form required in Kakarimusubi. Dare-ga Hanako-kara hon-o moraw-ta-ka watasi-wa sir-anai. Dare-ka -ga Hanako-kara hon-o moraw-ta. In 30a,b , it attaches to wh-phrases and yields indefinite expressions. One well-known proviso is that the indefinite usage of ka is possible without or only before nominative and other structural Case markers as shown in 30a , whereas postpositions like kara in 31b can precede or follow ka with a subtle semantic shift. Whose arm should I have as my pillow? Might the man I love be thinking about me too? In 31a , the phrase with ka, which must follow the case particle unlike in PJ, exhibits a kind of agreement with the form of its local predicate, which is known as Kakarimusubi, and the construction is interpreted as interrogative like 29a,b , and unlike 30a,b in PJ. Ikawa argues that a wh-phrase marked with ka in OJ obligatorily moves to the left edge of its clause, whereby the clausal head mediates the agreement of the predicate with the wh-phrase. They can appear clause-finally or after major phrases. They mark the focus of a clause. They mark the end of a clause. As for 32b , the focus of a wh-question in OJ is on the wh-phrase. Ka-marked indefinites in PJ express new information. The clause-internal SFPs in 6a,b also seem to perform some pragmatic function to foreground the phrases they attach to. See also Watanabe , where it is Focus. One implementation of their analyses under my theory is to assume that the clausal head had [WH] and wh-phrases had [uK] assumed in 10b. An alternative is to assume that ka had [Q] just as in PJ , which is uninterpretable clause-internally and becomes interpretable at the periphery of the clause. Given the availability of multiple and long- distance scrambling in PJ, however, it is plausible to claim that wh-phrases can move to the left periphery of the clause with ka to satisfy 32b and their lowest copies are pronounced. As for 32c , ka and the other SFPs fulfill it straightforwardly in clause-final position. Ka in indefinites in PJ lost this function, ceasing to bundle a clause-type feature. Ka in wh-questions in OJ meets 32c via its agreement with the predicate in the manner proposed by Ikawa Non-clausal constituents with the SFPs in 6a,b resemble in-situ wh-phrases in PJ in that they can occur multiply and in deeply embedded clauses just as scrambling applies to more than one constituent non-locally. They accord with 32c if their SFPs are originally in clause-final position as described in 33a , and they scramble to the edge of the clause marked with the SFPs. Since the moved phrase and its copies constitute a single SO, it is reasonable to assume that the SFP is pronounced where its host is pronounced. Remember that a heavy pause is required after the pronounced copy in 33a. It can be regarded as the PF reflex of scrambling, which is linearly undone by the choice of Spellout. They both are met in non-canonical elliptical constructions like 25a and clefts such as On the locality and motivation of move and agree: An even more minimal theory. Feature inheritance versus extended projections. In Step by step: Essays

on minimalist syntax in honor of Howard Lasnik, eds.

Chapter 4 : LINGUIST List Morphology, Pragmatics, Semantics, Syntax: HÃ¸eg & Klinge ()

"On certain differences between noun phrases and clauses" by Naoki Fukui and Mihoko Zushi: This paper was the most strongly grounded in a generative approach.

Sakai, Computational principles of syntax in the regions specialized for language: Integrating theoretical linguistics and functional neuroimaging, Frontiers in Behavioral Neuroscience, One promising approach to this problem would be to construct formal and abstract linguistic models that parametrically predict the activation modulations in the regions specialized for linguistic processes. In this article, we review recent advances in theoretical linguistics and functional neuroimaging in the following respects. First, we introduce the two fundamental linguistic operations: Merge which combines two words or phrases to form a larger structure and Search which searches and establishes a syntactic relation of two words or phrases. We also illustrate certain universal properties of human language, and present hypotheses regarding how sentence structures are processed in the brain. Hypothesis II is that the basic frame of the syntactic structure of a given linguistic expression is determined essentially by functional elements, which trigger Merge and Search. We then present our recent functional magnetic resonance imaging experiment, demonstrating that the DoM is indeed a key syntactic factor that accounts for syntax-selective activations in the left inferior frontal gyrus and supramarginal gyrus. We confirm that the DoM accounts for activations in various sentence types. Hypothesis III successfully explains activation differences between object- and subject-relative clauses, as well as activations during explicit syntactic judgment tasks. A future research on the computational principles of syntax will further deepen our understanding of uniquely human mental faculties.. Here we hypothesized that scrambling should activate the left frontal regions, while topicalization would affect the bilateral temporal regions. To examine such distinct effects in our functional magnetic resonance imaging study, we targeted the Kaqchikel Maya language, a Mayan language spoken in Guatemala. In Kaqchikel, the syntactically canonical word order is verb-object-subject VOS , but at least three non-canonical word orders i. We used a sentence-picture matching task, in which the participants listened to a short Kaqchikel sentence and judged whether a picture matched the meaning of the sentence. The advantage of applying this experimental paradigm to an understudied language such as Kaqchikel is that it will allow us to validate the universality of linguistic computation in the brain. These results establish that the types of scrambling and topicalization have different impacts on the specified language areas. Sakai, Syntactic Computation in the Human Brain: Previous neuroimaging studies have reported that more complex sentences elicit larger activations in the left inferior frontal gyrus L. Using jabberwocky sentences with distinct constructions, we fitted various parametric models of syntactic, other linguistic, and nonlinguistic factors to activations measured with functional magnetic resonance imaging. We further introduced letter strings, which had neither lexical associations nor grammatical particles, but retained both matching orders and symbol orders of sentences. By directly contrasting jabberwocky sentences with letter strings, localized activations in L. SMG were indeed independent of matching orders and symbol orders. Moreover, by using dynamic causal modeling, we found that the model with a inhibitory modulatory effect for the bottom-up connectivity from L. For this best model, the top-down connection from L. SMG was significantly positive. By using diffusion-tensor imaging, we confirmed that the left dorsal pathway of the superior longitudinal and arcuate fasciculi consistently connected these regions. Lastly, we established that nonlinguistic order-related and error-related factors significantly activated the right R. These results indicate that the identified network of L. SMG subserves the calculation of DoM in recursively merged sentences.. Sakai, Merge-generability as a crucial concept in syntax: Sakai, Scrambling elicits larger activation than topicalization in the grammar centers: Sakai, Dissociating scrambling from topicalization for activations in the grammar centers: Sakai, The left inferior frontal gyrus activation selectively increased by the object shift in a sentence: Sakai, The left frontal activation selectively modulated by syntactic processing: Sakai, Activation modulation in the left inferior frontal gyrus caused by scrambled

word orders: Classification of compound nouns based on the frequency of rendaku, 3rd ICPP, Sakai, The importance of the top-down connection through the superior longitudinal and arcuate fasciculi for the computation of syntactic structures, Neuro, Sakai, The importance of the dorsal pathway for the computation of syntactic structures, Neuroscience, Sakai, Specialization of the human language areas for the recursive computation of syntactic structures, NLC, Sakai, Elucidation of the recursive computation in the language areas: Embedding depth as a computational principle, Neuroscience, Sakai, The selective modulation of the frontal activations by embedding depths in sentences: An fMRI study, Neuro,

Chapter 5 : What exactly is Universal Grammar, and has anyone seen it?

This volume brings together scholars of diverse theoretical persuasions who all share an interest in capturing the role that nominal determination and reference assignment play in the complicated interplay between thought, language and communication.

Hauser Find articles by Marc D. Roberts Find articles by Ian G. Received Oct 13; Accepted Dec The use, distribution or reproduction in other forums is permitted, provided the original author s or licensor are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms. This article has been cited by other articles in PMC. Abstract It is a truism that conceptual understanding of a hypothesis is required for its empirical investigation. However, the concept of recursion as articulated in the context of linguistic analysis has been perennially confused. These authors put forward the hypothesis that what is uniquely human and unique to the faculty of languageâ€"the faculty of language in the narrow sense FLN â€"is a recursive system that generates and maps syntactic objects to conceptual-intentional and sensory-motor systems. As we explain, the recursiveness of a function is defined independent of such output, whether infinite or finite, embedded or unembeddedâ€"existent or non-existent. And to the extent that embedding is a sufficient, though not necessary, diagnostic of recursion, it has not been established that the apparent restriction on embedding in some languages is of any theoretical import. Misunderstanding of these facts has generated research that is often irrelevant to the FLN thesis as well as to other theories of language competence that focus on its generative power of expression. This essay is an attempt to bring conceptual clarity to such discussions as well as to future empirical investigations by explaining three criterial properties of recursion: By these necessary and sufficient criteria, the grammars of all natural languages are recursive. More generally, from a logical formalism of finitely specifiable axioms and theories, such a procedure would decideâ€"i. It only remained to formalize the intuitive concept of computability. Computability Turing demonstrated that computational treatments could be established for particular decision problems, but that no general decision procedure exists. Thus concluded the Hilbertian program. In a stepwise process analogous to proof construction, the machine deterministically generates outputs analogous to theorems given inputs which, with initial conditions, form a set analogous to axioms by returningâ€"recursingâ€"intermediate results analogous to lines or lemmas according to its programmed rules. It is of fundamental importance to understand that the non-arbitrary set generated by a recursive function qua Turing machine need not be represented as an output; to recursively generate a set is not to produce it. The function is defined in intension: This notion of intension is realized in a Turing machine as rules for conditional branching: For example, independent of its potential application to particular inputs, a rule of arithmetic determines generates a range of numbers i. It is because of the aforementioned insights from Turing that we define language as I-language: I-language is to be distinguished from E-language: The extension of I-language can be defined as the set of objects it generates and thereby constrains i. We can further illustrate the I- v. E- distinction in the case of language by drawing an analogy to arithmetic. The latter may not be represented anywhere internally or externally ; it is non-etheless the set generated by the former in the sense that the extension is deterministically specified by the intension. If I-arithmetic were encoded as a computer program a finite amount of information , the standard ontological assumption in computer science and information theory would be that E-arithmeticâ€"which would require an infinite number of bits to fully enumerateâ€"is compressed into the program. If I-arithmetic were to output a set, the members would be those and only those that satisfy the specified conditions i. Identical logic defines I-language into which E-language is compressed: The range of a recursive function can be infinite, as with the arithmetical rule. The computation can run to infinity, but its rules are finitely specified and at any step in the computation only a finite amount of tape has been processed. The finiteness of the machine is fundamental: Therefore, it is necessary to define the set intensionally by a finite procedure a rule to derive or predict what

things satisfy the conditions to be subsumed in the set or equivalently to generate describe all and only those things the set subsumes. In other words, if a set is non-arbitrary, then there must exist a reason why it subsumes all and only those things it does; and the rule is the reason. With this elegantly elementary model of computation, the general concept of a formal system was established. These systems therefore constitute the ontological and epistemological foundations of the formal and natural sciences. We next explain the significance of this rather dense definition for our discussion. 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This mapping is supported by the fact that one string can correspond to many structures in a many-one function. Consider the string the boy saw the man with binoculars. This string is two-ways ambiguous because it corresponds to two possible structures representing two possible interpretations: In this sense, and contrary to Fitch and Friederici , we do not see too many applications of formal language theory to have been all that profitable in clarifying concepts, formulating and testing hypotheses, or opening new frontiers of research. However, there are important exceptions e. Definition by induction is related to the form of recursion as mathematical induction from bounded to unbounded: This formulation is analogous to the successor function that, like other similar functions, has the potential to generate an unbounded output. We turn next to a discussion of bounded and unbounded outputs, and their relationship to the underlying generative function. Un boundedness The mathematical induction from bounded to unbounded is perhaps the most misunderstood aspect of a recursive procedure. Three facts are critical to proper understanding. First, a recursive function may generate an infinite set yet only produce a finite output because of arbitrary constraints. Analogously, the grammar of a language L generates L in its infinityâ€"i. Equally arbitrary to physical limitations are formal stipulations: Second, because the range of a recursive function is by definition non-arbitrary, any arbitrarily limited output can be expanded in a principled manner. Such programs are explicitly rejected in connectionism e. Whether these uniquely human programs emerged specific to language and were thereafter exapted to other domains e. Whatever their origin, these recursive programs provided our capacity for thought and expression with a uniquely powerful upgrade. Third, the representation extension of the set generated is immaterial to the form intension of its generation. For instance, given that recursiveness is a property of the procedure applicable to any input rather than a property of potential output, equating recursion with syntactic embedding is simply a fallacy. Recapitulation The core computational mechanisms of recursion, proposed to be constitutive of FLN, are: A computable function is necessary to derive sets; a list is epistemologically and, more importantly, ontologically meaningless. That the function is defined inductively enables it to strongly generate increasingly structured expressions. And with mathematical induction, the computable generation of such expressions is unbounded. Recursion in human and non-human animals Given the explication of recursion in the previous section, we turn next to two lines of research that have been headlined as knockouts of the FLN thesis, as well as earlier formulations of Universal Grammar UG the theory of the genetic endowment for language. In particular, we discuss why claims of languages lacking recursive expressions, though of interest, say nothing about recursive functions because output systems are simply not relevant to the instantiation of this capacity in all human brains. Conversely, we discuss why claims that animals are capable of processing embedded expressions, though interesting, do not take down the uniqueness claim that underpins the FLN thesis. Embedding, though of interest as a computational capacity, is not synonymous with recursion, and nor is

embedding part of the original FLN thesis. Caps and gaps Consider a recent critique of FLN-style theories: This quote embodies the conceptual confusions discussed in the earlier sections above. First, as discussed in section Three Properties of Recursion, to understand recursion as embedding is actually to misunderstand recursion: But even accepting properties of the output as indicative of a recursive mechanism, embedding is not dispositive, as linguistic typologists have long known: Second, any limitations on depth of embedding in structures that FLN does generate can only be arbitraryâ€”i. This function is demonstrably computable: The function is defined by induction: And finally, the function is mathematically inductive: In short, this function is recursive. Ultimately, any boundedness is demonstrably arbitrary as proved by the undisputed fact that recursion is unbounded in some i. The number faculty is analogous: Evolution The FLN thesis is a proposal about what is unique to our species and unique to the faculty of language. As in any claim about uniqueness, comparative research is requiredâ€”in this case, comparing the capacities of different species as well as different domains of knowledge other than language within our own species. To suggest that only humans are endowed with recursive capacities that map to the sensory-motor and conceptual-intentional systems is to formulate a challenge for comparative work, a challenge that requires critical observations and experiments. To this end, Fitch and Hauser sought to develop a research program that would potentially enable a test of this hypothesis. Due to its computational rigor and clarity, they started with the Chomsky hierarchy Chomsky, a. More specifically, they designed an experiment based on two features that would facilitate comparison with humans, both young and old: This was a test of computational power, not the three criterial properties of recursion; establishing the former is necessary to exploring the latter. Based on both the introduction to this paper, and its conclusions, independently of the particular results, not even the most positive evidence would serve to knockout the FLN thesis. Rather, this experiment was designed to provide a different approach to the problem of comparing across species, one that might enable a more direct comparison between humans and non-human animals. Results showed that cotton-top tamarins spontaneously processed the finite-state grammar i. Fitch and Hauser concluded that the generative capacity required to fully process a phrase-structure may have been the bottleneck that we alone broke through. Unfortunately, in our opinion, most of these studies misinterpreted the reasoning behind the Fitch and Hauser experiments, both in terms of methodological design as well as theoretical implications. Specifically, the majority of studies that followed used massive training, as opposed to spontaneous methods. Though these methods can show what an animal can do under these conditions thousands of trials with reinforcement , these are not the conditions in which human children acquire language. No child forms a fully functional grammar based on exposure to 50, exemplars from an extremely narrow set of inputs, and then differentially reinforced for correct responses.

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Chapter 6 : John Benjamins Publishing

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The use, distribution or reproduction in other forums is permitted, provided the original author s or licensor are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms. This article has been cited by other articles in PMC. Abstract Universal Grammar UG is a suspect concept. There is little agreement on what exactly is in it; and the empirical evidence for it is very weak. This paper critically examines a variety of arguments that have been put forward as evidence for UG, focussing on the three most powerful ones: I argue that these arguments are based on premises which are either false or unsubstantiated. Languages differ from each other in profound ways, and there are very few true universals, so the fundamental crosslinguistic fact that needs explaining is diversity, not universality. Finally, the poverty of the stimulus argument presupposes that children acquire linguistic representations of the kind postulated by generative grammarians; constructionist grammars such as those proposed by Tomasello, Goldberg and others can be learned from the input. We are the only species that has language, so there must be something unique about humans that makes language learning possible. The extent of crosslinguistic diversity and the considerable individual differences in the rate, style and outcome of acquisition suggest that it is more promising to think in terms of a language-making capacity, i. Universal Grammar, language universals, poverty of the stimulus, convergence, individual differences, language acquisition, construction grammar, linguistic nativism Introduction The Universal Grammar UG hypothesisâ€"the idea that human languages, as superficially diverse as they are, share some fundamental similarities, and that these are attributable to innate principles unique to language: The predominant approach in linguistics for almost 50 years Smith, , p. In this paper, I provide a critical assessment of the UG approach. I argue that there is little agreement on what UG actually is; that the arguments for its existence are either irrelevant, circular, or based on false premises; and that there are fundamental problems with the way its proponents address the key questions of linguistic theory. What Exactly is UG? These are generally thought to include formal universals e. There is very little agreement, however, on what these actually are. However, every major development in the theory since then was accompanied by very substantial revisions to the list of proposed universals. Thus the list of UG principles is quite different when we move to the Barriers period, and radically different in Minimalism see below. With respect to parameters, very few scholars have even attempted to give a reasonably comprehensive inventory of what these are. Two rare exceptions are Baker , who discusses 10 parameters, and Fodor and Sakas , who list In both cases, the authors stress that the list is far from complete; but it is interesting to note that only three parameters occur on both lists Tomasello, ; see also Haspelmath, There is no agreement even on approximately how many parameters there are: According to Shlonsky , p. Things are no better when we consider substantive universals. While most generative linguists agree that the inventory of lexical categories includes N, V, and A, there is little agreement on what the functional categories are see Newmeyer, ; Corbett, ; Pullum and Tiede, ; Boeckx, Newmeyer surveys some of the relevant literature and concludes: It seems fair to say that categories are proposed for a particular language when they appear to be needed for that language, with little thought as to their applicability to the grammar of other languages. My guess is that well over two hundred have been put forward in current work in the principles-and-parameters tradition. As a result, supplying even a provisional list of what the set of universal distinctive syntactic features might be seems quite hopeless. At the other extreme, we have the strong minimalist thesis, according to which UG may comprise just the structure-building operation Merge cf. Chomsky, , ; Berwick et al. It seems that the only point of agreement amongst proponents of UG is that it exists; they do not agree on what it actually contains.

What evidence, then, is there for the existence of specifically linguistic innate knowledge? I turn to this question in the next section. Arguments for UG Over the years, a number of arguments have been put forward in support of the UG hypothesis. These include the following: All human languages share certain properties. Children are exposed to different input yet converge on the same grammar. Children acquire knowledge for which there is no evidence in the input. Children know which structures are ungrammatical and do not acquire overgeneral grammars in spite of the fact that they are not exposed to negative evidence. We are the only species that has language. Children learn language quickly and effortlessly, on minimal exposure. All children acquiring language go through the same stages in the same order. Language acquisition is very sensitive to maturational factors and relatively insensitive to environmental factors. Some clinical populations have relatively normal language and impaired cognition; some have impaired cognition and relatively normal language. Arguments 1â€”4 are generally regarded as the most powerful ones; 5â€”10 are subsidiary in the sense they only provide support for the idea of innateness of language general, rather than the innateness of a specific aspect of linguistic organization, and they are also open to other interpretations. I begin by evaluating the subsidiary arguments, and then move on to the more powerful ones. If people believe that, then they believe that language is not innate. If they believe that there is a difference between my granddaughter, a rabbit, and a rock, then they believe that language is innate. However, nobody disputes this, so in the passage quoted above Chomsky is fighting a straw man. The crucial question is whether the relevant knowledge or abilities are language-specific or whether they can be attributed to more general cognitive processesâ€”and this is far from clear. There are a number of other characteristics which appear to be specific to our species. These include collaboration, cultural learning, the use of complex tools, andâ€”surprisinglyâ€”the use of pointing and others means of drawing attention to particular features of the immediate environment, such as holding objects up for others to see. As Tomasello et al. The ability to read and share intentions, including communicative intentionsâ€”i. First, it enables the language learner to understand what language is for: Secondly, it provides the learner with a vital tool for learning language. In order to learn a language, one must acquire a set of form-meaning conventions; and to acquire these, learners must be able to guess at least some of the meanings conveyed by the utterances they hear. The human ability to read and share intentions may not explain subjacency effectsâ€”the existence of other differences between humans and other species does not entail lack of UG, just as species specificity does not entail its existence. In other words, the fact that we are the only species that has language does not entail that we have innate knowledge of subjacency. In fact, they get vast amounts of language experience. At input words per hour the average number of words heard by the children in the Manchester corpus , 2 this amounts to over 42 million words over 4 years. Note that this is a rather conservative estimate: Consider, for example, Jimâ€”one of children studied by Sachs et al. In early childhood, Jim had very little contact with hearing adults but watched television quite frequently, and occasionally played with hearing children. His parents used sign language when addressing each other, but did not sign to the children. At age 3;9 3 years and 9 months â€”the beginning of the studyâ€”Jim had very poor comprehension of spoken language, and severe articulation problems. His utterances were very short, with an MLU mean length of utterance of 2. And, interestingly, although he was exposed to ASL at home, he did not sign. Thus, although he was exposed to both spoken English through television and occasional interaction with other children and to ASL though observing his parents , Jim did not acquire either language until he was given an opportunity to interact with competent users. Uniformity Some researchers e. Most children say their first referential words at 9 to 15 monthsâ€¦ and for the next months, children typically acquire single words fairly slowly until they have acquired approximately 50 wordsâ€¦. Once children have acquired 50 words, their vocabularies often increase rapidlyâ€¦. At around 18 to 24 months, children learning morphologically impoverished languages such as English begin combining words to form two-word utterancesâ€¦. Children acquiring such morphologically impoverished languages gradually begin to use sentences longer than two words; but for several months their speech often lacks phonetically unstressed functional category morphemes such as determiners, auxiliary verbs, and verbal and nominal inflectional endings â€¦. There are several points

to be made in connection with this argument. First, many of the similarities that Stromswold mentions are not very remarkable: Secondly, the age ranges she gives e. These are quite substantial: For example, the passive is acquired quite late by English speaking childrenâ€"typically though by no means alwaysâ€"see below by age 4 or 5, and even laterâ€"by about 8â€"by Hebrew-speaking children Berman, Such differences are most obvious, and easiest to quantify, in lexical development. The comprehension vocabularies of normally developing children of the same age can differ tenfold or more Benedict, ; Goldfield and Reznick, ; Bates et al. Children also differ with regard to the kinds of words they learn in the initial stages of lexical development. Last but not least, there are differences in the pattern of growth. Grammatical development is also far from uniform. While some children begin to combine words as early as 14 months, others do not do so until after their second birthday Bates et al. Some children are very cautious learners who avoid producing forms they are not sure about, while others are happy to generalize on the basis of very little evidence. This results in large differences in error rates Maratsos, Peters argues that holistic children attempt to approximate the overall shape of the target utterance while analytic children concentrate on extracting and producing single words. Analytic children must learn how to combine words to form more complex units. They start by putting together content words, producing telegraphic utterances such as there doggie or doggie eating. Later in development they discover that different classes of content words require specific function words and inflections nouns take determiners, verbs take auxiliaries, and tense inflections, etc. Holistic children, in contrast, must segment their rote-learned phrases and determine how each part contributes to the meaning of the whole. Unlike analytic children, they sometimes produce grammatical morphemes very early in acquisition, embedded in larger unanalysed or only partially analyzed units; or they may use filler syllables as place-holders for grammatical morphemes. As their systems develop, the fillers gradually acquire more phonetic substance and an adult-like distribution, and eventually evolve into function words of the target language Peters and Menn, ; Peters, Thus, while both groups of children eventually acquire similar grammars, they get there by following different routes. The claim that language acquisition is insensitive to environmental factors is simply incorrect, as demonstrated by the vast amount of research showing that both the amount and quality of input have a considerable effect on acquisitionâ€"particularly for vocabulary, but also for grammar e.

Chapter 7 : POL Program - International Symposium on Language of Physics

This LINGUIST List issue is a review of a book published by one of our supporting publishers, commissioned by our book review editorial staff.

Paper titles, author names, and a brief summary of each paper follow below. Quotes, particularly from the abstracts and conclusions, are included in an effort to let the authors represent their own work as much as possible, and to avoid possible misinterpretations, especially where the frameworks are less familiar to this reviewer. I have numbered the chapters here for ease of reference in the evaluation part of the review. In this opening to the book the editors first give a rationale for studying nominal determination in languages, and describe how it is of interest to researchers working on articles, linguistic number and other related features. They then provide a brief literature review and group the various authors and contributions by approach, giving their take on what the papers in each group have in common. Harder stresses the precedence of semantics over structure in how systems of definite and indefinite reference have evolved. Korzen broadly classifies Germanic languages as endocentric and Romance languages as exocentric, with English showing features of both. The reverse tends to apply to verbs in the two languages. French, as compared to German, which has a less strong need for articles p. Zamparelli analyzes singular predicate nouns with an absence of determiners in Italian and French as referring to specific professions, roles and relations, e. His rationale is that the bare predicates have no set value for gender or sometimes other features. This is relevant to the papers by Stark see above and Longobardi discussed just below. This paper was the most strongly grounded in a generative approach. This paper treats the similarities and differences between definite articles and possessive pronouns in French. Kleiber attempts to provide an account for the fact that certain contexts allow only one, or the other, while others allow both, e. The authors challenge the claim of Gundel et al. EVALUATION This book is satisfying in that it offers a focused treatment of the very basic and important linguistic feature of nominal determination, which encompasses definite and indefinite articles, possessives, demonstratives, quantifiers, numerals, adjectives, nouns and their phrasal projections, and discourse management, as pointed out in the introduction. It is not, nor does it intend to be, a comprehensive survey or account of nominal determination, but rather reflects the diverse directions which several interested researchers have pursued in their involvement with this topic. There is also a bit on Greek, and a short section on Akan, spoken in Ghana. As is almost inevitable in an edited volume, the papers vary greatly in approach and richness of content. The papers written from a generative approach, chapters 7, 8 to some extent, 10, and 13, largely accessible, even to those not personally working in a generative framework, though not necessarily always easy going or strongly engaging. The introduction is relatively short and provides a useful roadmap for the rest of the book. I appreciated the arguments in ch. The following chapter compares the differing uses of indefinite nominal determiners across several Romance languages. The final paper builds its argument on a small intonational difference between the definite article and distal demonstrative in Norwegian. This paper also contains the beginnings of interesting data from Akan apparently the native language of one of the co-authors , which nevertheless do not quite mesh with the rest of the book. Usually collections like this one will contain at least one treasure that makes one feel the book as a whole was worth slogging through. Korzen takes up in a quite original way the issue of relative information density of nouns vs. Two other papers I especially enjoyed were chs. The approaches are intriguing and the results noteworthy. But while the author of ch. These are in fact mentioned in the next chapter. I would give this book four and a half out of five stars -- a full five stars for the quality of the editing and presentation only a few very minor glitches here and there , but with one half star taken off for some papers that could have been considerably condensed. This is a very simply designed but handsome volume, inside and out. Like many specialized academic works, it is quite pricey, with the electronic version costing the same as the paper one, making it more suitable for purchase by libraries than by casual readers. Because this is a dense work that branches off into many disparate directions, most readers are

probably best advised to first skim it to identify which chapters are of interest or potentially useful as references in their personal research, and to concentrate on those. The table of contents, introduction, abstracts and conclusions will give readers with limited time a good idea of what to expect from each contribution. Adding chapter numbers would have made it easier to find and cite chapters. In sum, if you are interested in topics like definite and indefinite articles, generic plurals, and linguistic number, you are bound to find something in this volume that rewards you for whatever time you invest in it. Cognitive status and the form of referring expressions in discourse. Karen Steffen Chung is an associate professor of English and linguistics in the foreign language department of National Taiwan University in Taipei, and also teaches English over the radio and Internet. Her areas of specialization include phonetics, teaching of pronunciation, and Chinese morphology.

Chapter 8 : International Network in Biolinguistics

This paper explores a way of deducing the set of major typological differences between English and Japanese including the existence of obligatory syntactic wh movement, of the so-called'multiple subject'structures in clauses and noun phrases, of the'scrambling'phenomena, etc.

Paper titles, author names, and a brief summary of each paper follow below. Quotes, particularly from the abstracts and conclusions, are included in an effort to let the authors represent their own work as much as possible, and to avoid possible misinterpretations, especially where the frameworks are less familiar to this reviewer. I have numbered the chapters here for ease of reference in the evaluation part of the review. In this opening to the book the editors first give a rationale for studying nominal determination in languages, and describe how it is of interest to researchers working on articles, linguistic number and other related features. They then provide a brief literature review and group the various authors and contributions by approach, giving their take on what the papers in each group have in common. Harder stresses the precedence of semantics over structure in how systems of definite and indefinite reference have evolved. Korzen broadly classifies Germanic languages as endocentric and Romance languages as exocentric, with English showing features of both. The reverse tends to apply to verbs in the two languages. French, as compared to German, which has a less strong need for articles p. Zamparelli analyzes singular predicate nouns with an absence of determiners in Italian and French as referring to specific professions, roles and relations, e. His rationale is that the bare predicates have no set value for gender or sometimes other features. This is relevant to the papers by Stark see above and Longobardi discussed just below. This paper was the most strongly grounded in a generative approach. This paper treats the similarities and differences between definite articles and possessive pronouns in French. Kleiber attempts to provide an account for the fact that certain contexts allow only one, or the other, while others allow both, e. The authors challenge the claim of Gundel et al. EVALUATION This book is satisfying in that it offers a focused treatment of the very basic and important linguistic feature of nominal determination, which encompasses definite and indefinite articles, possessives, demonstratives, quantifiers, numerals, adjectives, nouns and their phrasal projections, and discourse management, as pointed out in the introduction. It is not, nor does it intend to be, a comprehensive survey or account of nominal determination, but rather reflects the diverse directions which several interested researchers have pursued in their involvement with this topic. There is also a bit on Greek, and a short section on Akan, spoken in Ghana. As is almost inevitable in an edited volume, the papers vary greatly in approach and richness of content. The papers written from a generative approach, chapters 7, 8 to some extent, 10, and 13, largely accessible, even to those not personally working in a generative framework, though not necessarily always easy going or strongly engaging. The introduction is relatively short and provides a useful roadmap for the rest of the book. I appreciated the arguments in ch. The following chapter compares the differing uses of indefinite nominal determiners across several Romance languages. The final paper builds its argument on a small intonational difference between the definite article and distal demonstrative in Norwegian. This paper also contains the beginnings of interesting data from Akan apparently the native language of one of the co-authors , which nevertheless do not quite mesh with the rest of the book. Usually collections like this one will contain at least one treasure that makes one feel the book as a whole was worth slogging through. Korzen takes up in a quite original way the issue of relative information density of nouns vs. Two other papers I especially enjoyed were chs. The approaches are intriguing and the results noteworthy. But while the author of ch. These are in fact mentioned in the next chapter. I would give this book four and a half out of five stars -- a full five stars for the quality of the editing and presentation only a few very minor glitches here and there , but with one half star taken off for some papers that could have been considerably condensed. This is a very simply designed but handsome volume, inside and out. Like many specialized academic works, it is quite pricey, with the electronic version costing the same as the paper one, making it more suitable for purchase by libraries than by

casual readers. Because this is a dense work that branches off into many disparate directions, most readers are probably best advised to first skim it to identify which chapters are of interest or potentially useful as references in their personal research, and to concentrate on those. The table of contents, introduction, abstracts and conclusions will give readers with limited time a good idea of what to expect from each contribution. Adding chapter numbers would have made it easier to find and cite chapters. In sum, if you are interested in topics like definite and indefinite articles, generic plurals, and linguistic number, you are bound to find something in this volume that rewards you for whatever time you invest in it. Cognitive status and the form of referring expressions in discourse. Her areas of specialization include phonetics, teaching of pronunciation, and Chinese morphology.

Chapter 9 : DERIVING THE DIFFERENCES BETWEEN ENGLISH AND JAPANESE: A CASE STUDY IN

This book presents Fukui's investigation in the theory of phrase structure, which leads to to the proposal of what came to be known as the "relativized X'-theory." This theory, which draws a fundamental distinction between lexical and functional categories, is the most widely discussed.