

# 語彙機能文法

制約に基づく文法理論と心理的実在

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*A generative grammar is not a model for a speaker or a hearer... No doubt, a reasonable model of language use will incorporate, as a basic component, the generative grammar that expresses the speaker-hearer's knowledge of the language; but this generative grammar does not, in itself, prescribe the character or functioning of a perceptual model or a model of speech-production.*

(Chomsky 1965:9; cf. Bresnan 1978:1)

## 1 心理的実在性

- There seems no serious doubt that structural descriptions are, . . . , psychologically real; . . . The direct evidence that the integration and recognition of sentences is governed by the computational processes specified by transformational grammars appears considerably weaker.  
(Fodor et al. 1974:273-4)
- [I]n essence. . . the question of psychological reality is no more and no less sensible in principle than the question of the physical reality of the physicist's theoretical constructions  
(Chomsky 1980:192)
- Chomsky construes the problem of psychological reality as an ontological problem. . . In other words, he takes the question to be whether the rules and other constructs of linguistic theory "have reality," whether they describe real mental entities and processes. . . What has been doubted is that these internal knowledge structures are adequately characterized by transformational grammars. . .  
(Bresnan & Kaplan 1982:xx)

### Realistic Grammar

- 直観に基づく言語記述のみならず, 言語産出・理解のプロセスも説明しうる心理的実在性を持った言語知識の特徴付け
- 言語使用の心理的モデルとして具現化可能—異なった文法規則や言語形式がそれぞれ別個の過程, 情報単位として処理される
- 統語部門, 意味部門は短期記憶を使用し自動化された情報処理に対応する.
- 産出・理解のための言語使用における情報処理は長期記憶と汎用的知識を使った推論的システムによって行われる.
- 語彙情報は膨大であり, 統語処理は計算ではなく語彙情報を参照することで行われる.

(Bresnan 1978:3,14)

## 2 移動のパラドクス

- (1) a. *That problem*, we talked about  $\Delta$  for days.  
b. We talked about *that problem* for days.
- (2) a. [*That he was sick*] we talked about  $\Delta$  for days.  
b. \*We talked about [*that he was sick*] for days.
- (3) a. [*That languages are learnable*] is captured  $\Delta$  by this theory.  
b. \*This theory captures [*that languages are learnable*]. (Bresnan 2001:17)
- (4) a. I don't care [*that languages are learnable*].  
b. \*[*That languages are learnable*] isn't cared  $\Delta$ . (Bresnan 2001:22)
- (5) I said I would meet you, . . .  
a. . . and [*meet/\*met you*] I will  $\Delta$ !  
b. . . and I will [*meet/\*met you*].
- (6) She said she would meet me, . . .  
a. . . and [*meet/met me*] she has  $\Delta$ !  
b. . . and she has [*\*meet/met me*]. (Bresnan 2001:18)
- (7) [*Buy/\*Bought a bigger house*] though John may  $\Delta$ , it still won't solve his book-storage problem.
- (8) [*Buy/Bought a house*] though they have  $\Delta$ , they still haven't solved their book-storage problems. (Andrews 1994:218)
- (9) a. I *am not* your friend.  
b. \*I *amn't/ain't* your friend.
- (10) a. *Am I*  $\Delta$  not your friend? (formal)  
b. *Aren't I*  $\Delta$  your friend?  
c. \*I *aren't* your friend. (Bresnan 2001:18-9)
- (11) Teddy is the man I want to succeed.  
a. Teddy is the man (*whom*) I want  $\Delta$  to succeed. "I want Teddy to succeed."  
b. Teddy is the man (*whom*) I want to succeed  $\Delta$ . "I want to succeed Teddy."
- (12) Teddy is the man I wanna succeed.  
a. \*Teddy is the man (*whom*) I want  $\Delta$  to succeed. "I want Teddy to succeed."  
b. Teddy is the man (*whom*) I want to succeed  $\Delta$ . "I want to succeed Teddy."
- (13) a. There's gonna be a movie made about us.  
b. *There is going*  $\Delta$  to be a movie made about us. (Bresnan 1978:42-3)

### 3 語彙機能文法

#### 語彙機能文法 (Lexical-Functional Grammar; LFG)

- 言語情報がタイプにより並列的に存在する複数の構造に分散 (並列分散処理 [parallel distributed processing])
- それぞれの構造に適格性を規定する制約が科せられる (制約に基づく理論 [constraint-based])
- 各構造は関数によって対応付けられる (関数的 [functional])  
(Kaplan & Bresnan 1982, Bresnan 2001, Dalrymple 2001, Falk 2001, Kroeger 2004)

#### 並列的構造

- c 構造 (constituent-structure)
- f 構造 (functional-structure)
- s 構造 (semantic-structure)
- m 構造 (morphological-structure)
- p 構造 (phonological-structure)
- i 構造 (information-structure)

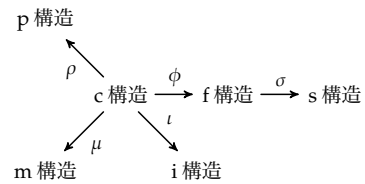
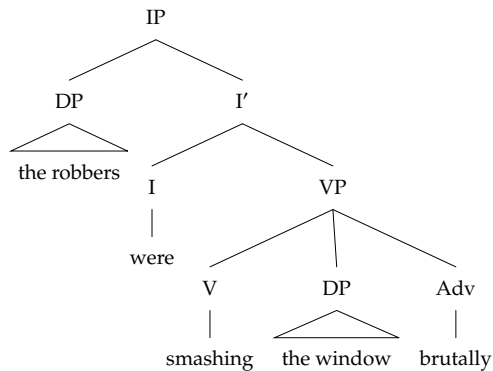


図 1: LFG における各構造の関数的対応の例

#### c 構造

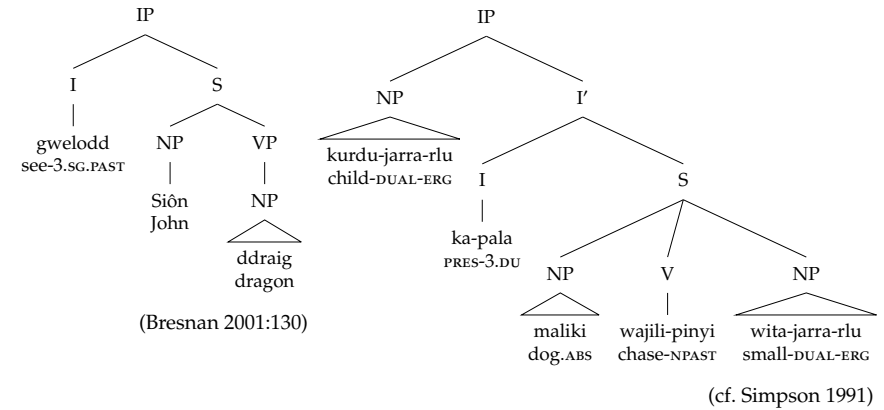
- 構成素の線形的, 階層的関係
- X 理論, 句構造規則
- 内心的 (endocentric), 外心的 (exocentric)

(14)



(15) ウェールズ語 (Welsh)

(16) ワルピリ語 (Warlpiri)



(Bresnan 2001:130)

(cf. Simpson 1991)

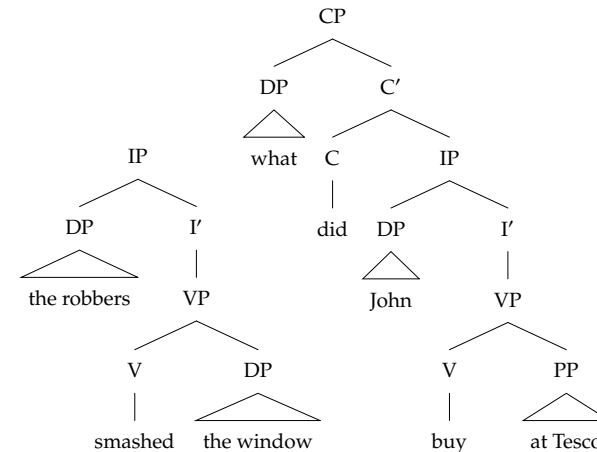
#### Relativised Lexical Integrity

Morphologically complete words are leaves of the c-structure tree and each leaf corresponds to one and only one c-structure node.  
(Bresnan 2001:92; cf. Bresnan & Mchombo 1995)

#### Economy of Expression

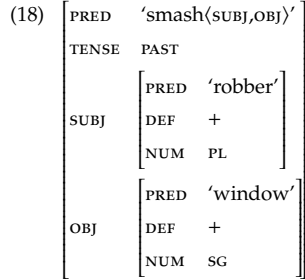
All syntactic phrase structure nodes are optional and are not used unless required by independent principles.  
(Bresnan 2001:92)

(17)



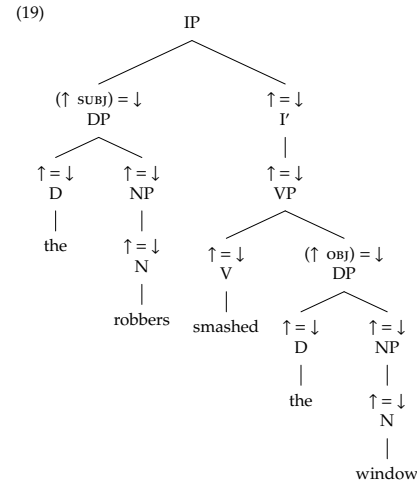
f 構造

- 属性値行列 (AVM; attribute-value matrix)
- 文法関係 (SUBJ, OBJ, COMP, ADJUNCT. . .)
- 文法素性 (TENSE, ASPECT, NUM, PERS, GEND. . .)



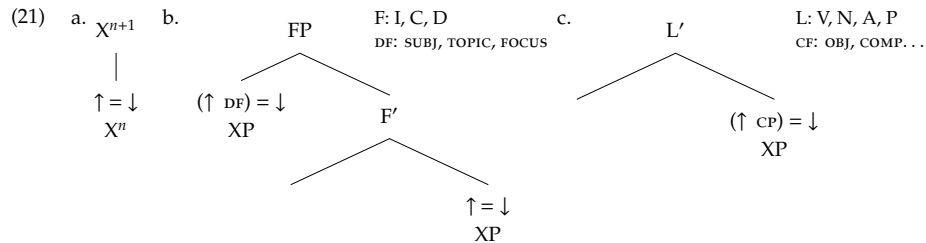
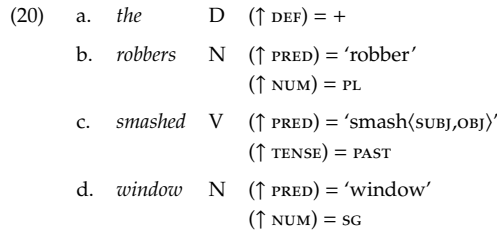
c 構造と f 構造の対応

- $\uparrow := \phi(M^*)$
- $\downarrow := \phi^*$
- $\phi$ : c 構造の節点から f 構造への写像
- $*$ : 現在の節点
- $M$ : c 構造の節点から母節点への写像



語彙項目

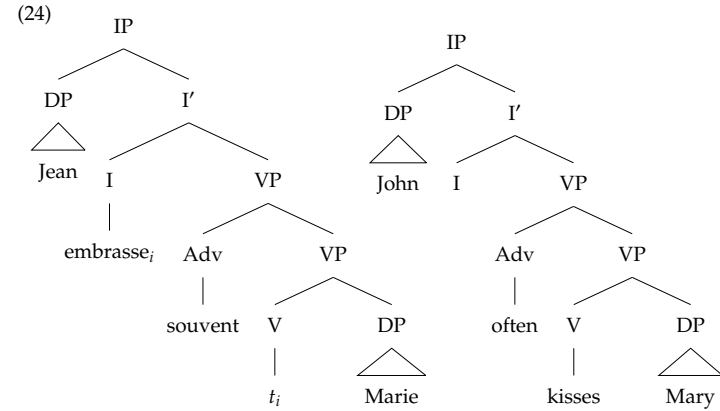
- 語形
- 範疇
- 関数, 属性, 値



4 語彙特性と基底生成

- (22) a. \*John likes *not* Mary.  
 b. \*John kisses *often* Mary.  
 c. John *often* kisses Mary.
- (23) a. Jean (n') aime *pas* Marie.  
 b. Jean embrasse *souvent* Maries.  
 c. \*Jean *souvent* embrasse Marie. (フランス語)

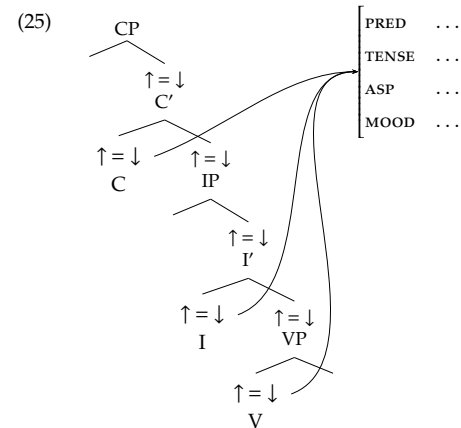
(Pollock 1989:367)



(cf. Emonds 1978, Pollock 1989)

Clause spine

- 動詞は語彙範疇の主要部にも機能範疇の主要部にも基底生成される。
- c 構造の V, I, C に生成された語彙項目の素性はすべて同一の f 構造に写像される (cf. (21a, b)). (Sells 2001; cf. Grimshaw's (2003) Extended Projection)



定動詞の機能範疇基底生成

- タガログ語 (Kroeger 1993)
- ロシア語 (King 1995)
- ウェールズ語 (Sadler 1997, Bresnan 2001)
- スウェーデン語 (Sells 2001)
- アイスランド語 (Sells 2003, 2005)
- ヨーロッパ・ポルトガル語 (Luís & Otaguro 2004, 2005, 2011, 2012)
- しかし, どういう要因で動詞が機能範疇に基底生成されるのかの原理的な説明は行われていない。

- (26) a. ... að Jón borðar oft tómata.  
that J. eats often tomatoes  
'... that John often eats tomatoes.'
- b. \*... að Jón oft borðar tómata. (アイスランド語)
- c. ... az Jonas est oft pomidorn.  
that J. eats often tomatoes
- d. \*... az Jonas oft est pomidorn. (イディッシュ語)
- (27) a. ... at Johan ofte spiser tomat.  
that J. often eats tomatoes
- b. \*... at Johan spiser ofte tomat. (デンマーク語)
- c. ... at Jón ofta etur tomatir.  
that J. often eats tomatoes
- d. \*... at Jón etur ofta tomatir. (フェロー語)  
(Vikner 1997:189)

Rich Agreement Hypothesis

動詞屈折形態が豊かな言語は動詞移動が存在する (V-to-Tパラメータが獲得される)

イディッシュ語		アイスランド語		デンマーク語		
<i>loyf-n</i> 'run'		<i>segj-a</i> 'say'		<i>høre</i> 'hear'		
Sg	Pl	Sg	Pl	Sg	Pl	
1	<u>loyf</u>	loyf-n	segi	<u>segj-um</u>	hør-te	hør-te
2	<u>loyf-st</u>	loyf-t	segi-r	<u>seg-ið</u>	hør-te	hør-te
3	loyf-t	loyf-n	segi-r	segj-a	hør-te	hør-te

表 1: イディッシュ語, アイスランド語, デンマーク語の動詞活用

Hallingmålet (ノルウェー)		Älvdalsmålet (スウェーデン)		
<i>höyræ</i> 'hear'		<i>höra</i> 'hear'		
Sg	Pl	Sg	Pl	
1	höyr-e	höyr-æ	hör-er	<u>hör-um</u>
2	höyr-e	höyr-æ	hör-er	<u>hör-ir</u>
3	höyr-e	höyr-æ	hör-er	hör-a

表 2: スカンジナビア方言の動詞活用

- (28) a. \*... at me kjøpæ *ikkje* bokje.  
that we buy not the.book
- b. ... at me *ikkje* kjøpæ bokje.  
that we not buy the.book
- (Hallingmålet)
- (29) a. Ba fo ðyæ at ig wild *int* fy om.  
but because that I wanted not follow him  
'Just because we didn't want to follow him.'
- b. Ig i red an kumb *inte*.  
I am afraid he comes not
- (Älvdalsmålet)  
(Rohrbacher 1999:118, Bobaljik 2002:136-7)

古スウェーデン語		中期英語		
<i>älska</i> 'love'		<i>singen</i> 'sing'		
Sg	Pl	Sg	Pl	
1	älsk-ar	älsk-um	<u>sing-e</u>	sing-en
2	älsk-ar	älsk-in	<u>sing-est</u>	sing-en
3	älsk-ar	älsk-a	sing-eð	sing-en

表 3: 古スウェーデン語と中期英語の動詞活用

- (30) a. Æn han sivngær ægh thigianda messu.  
if he sings not silent mass
- b. By thy thanks I set not a straw. (Koenen & Ziejstra 2010)

RAHの問題点

- 動詞活用の豊かさが失われても移動を維持している方言がある。
- 英語では動詞活用の豊かさが失われてから, 移動が消滅するまでに時間差があった (Roberts 1993, Watanabe 1994, Vikner 1997).

- (31) He va bra et an tsöfft *int* bootsen.  
it was good that he bought not the.book  
'It was good that he didn't buy the book.'
- (Kronoby Swedish)
- (32) ... før det at han Nilsen kom *ikkje*.  
because that he N. came not  
'... because Nilsen didn't come.'
- (Tromsø Norwegian)  
(Rohrbacher 1999:118, Bobaljik 2002:139)

LFG における提案

- 同一語彙素の活用形は、パラダイムを形成する (Andrews 1982, 1990, Sadler & Spencer 2001, Otaguro 2006, forthcoming).
- アイスランド語やイディッシュ語のような言語は、動詞の人称素性において活用形間でパラダイムの対立 (paradigmatic contrast) が見られる。
- ある言語において動詞の人称素性がパラダイムの対立を示すとき、動詞は機能範疇に基底生成される、と仮定する。

(33) アイスランド語 *segja* 'say'

	Sg	Pl
1	segi	segjum
2	segir	segjð
3	segir	segja

$$segi \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} + \\ - \end{array} \right] \end{array} \right] segjum \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} + \\ - \end{array} \right] \end{array} \right] segjð \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} - \\ + \end{array} \right] \end{array} \right] segir \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ - \end{array} \right] \\ \left[ \begin{array}{c} - \\ \text{SG} \end{array} \right] \end{array} \right] segja \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ - \end{array} \right] \\ \left[ \begin{array}{c} - \\ \text{PL} \end{array} \right] \end{array} \right]$$

(34) イディッシュ語 *loyn* 'run'

	Sg	Pl
1	loyn	loyn
2	loynst	loynft
3	loynft	loynfn

$$loyn \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} + \\ - \end{array} \right] \end{array} \right] loynst \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} - \\ + \end{array} \right] \end{array} \right] loynft \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ - \end{array} \right] \\ \left[ \begin{array}{c} - \\ \text{PL} \end{array} \right] \end{array} \right] loynfn \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ - \end{array} \right] \\ \left[ \begin{array}{c} - \\ \text{PL} \end{array} \right] \end{array} \right]$$

理論的予測

- 屈折形態の不活性化に伴って人称素性のパラダイムの対立が失われると、動詞の範疇が機能範疇から語彙範疇に徐々にシフトする。
- この変化は語彙的でありパラダイム的である。

(35)

中期英語 <i>cast</i>		初期近代英語 <i>cast</i>	
Sg	Pl	Sg	Pl
1	caste	casten	caste
2	castest	casten	caste
3	casteth	casten	caste

(cf. Roberts 1993:257)

中期英語:

$$caste \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} + \\ - \end{array} \right] \end{array} \right] castest \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} - \\ + \end{array} \right] \end{array} \right] casteth \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} - \\ - \end{array} \right] \end{array} \right] casten \left[ \begin{array}{c} \text{NUM} \\ \text{PL} \end{array} \right]$$

初期近代英語:

$$castest \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} - \\ + \end{array} \right] \end{array} \right] casteth \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} - \\ - \end{array} \right] \end{array} \right] caste \left[ \begin{array}{c} \text{NUM} \\ \text{PL} \end{array} \right] cast \left[ \begin{array}{c} \text{NUM} \\ \text{PL} \end{array} \right]$$

(36)

EP		Colloquial BP	
Sg	Pl	Sg	Pl
1	falo	falamos	fala fala
2	falas	falais	fala falam
3	fala	falam	fala falam

(Roberts 2007:338)

BP:

$$falo \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ 2 \end{array} \right] \\ \left[ \begin{array}{c} + \\ - \end{array} \right] \end{array} \right] falam \left[ \begin{array}{c} \text{PERS} \\ \text{NUM} \end{array} \begin{array}{c} \left[ \begin{array}{c} 1 \\ - \end{array} \right] \\ \left[ \begin{array}{c} - \\ \text{PL} \end{array} \right] \end{array} \right] fala \left[ \begin{array}{c} \text{NUM} \\ \text{PL} \end{array} \right]$$

## 5 結語

- LFG は派生操作のない静的な構造による言語知識の具現化であり、心理的実在性が高いモデルである。
- 定動詞位置のバリエーションは、主要部移動によらず、語彙の形態的特性で説明可能である。
- 形態的特性の変化 (パラダイムの対立の消失) は徐々にレキシコン内の語彙に広まり、語彙項目の範疇変化をもたらすことにより通時的変化や地理的バリエーションを生み出す。
- このようなアプローチは異なった情報を並列的に分散処理するモデルだからこそ可能になる。

## 参考文献

- Andrews, A. D. (1982). The representation of Case in Modern Icelandic. In Bresnan, J. (ed.), *The mental representation of grammatical relations*, Cambridge, MA: MIT Press. 427–503.
- Andrews, A. D. (1990). Unification and morphological blocking. *Natural Language and Linguistic Theory* 8. 507–557.
- Andrews, A. D. (1994). Syntax textbook draft 4.0. The Australian National University.
- Bobaljik, J. D. (2002). Realizing Germanic inflection: Why morphology does not drive syntax. *Journal of Comparative Germanic Linguistics* 6. 129–167.
- Bresnan, J. (1978). A realistic transformational grammar. In Halle, M., Bresnan, J. & Miller, G. A. (eds.), *Linguistic theory and psychological reality*, Cambridge, MA: MIT Press. 1–59.
- Bresnan, J. (2001). *Lexical-Functional Syntax*. Oxford: Blackwell.
- Bresnan, J. & Kaplan, R. M. (1982). Introduction: Grammars as mental representation of language. In Bresnan, J. (ed.), *The mental representation of grammatical relations*, Cambridge, MA: The MIT Press. xvii–lii.
- Bresnan, J. & Mchombo, S. A. (1995). The lexical integrity principle: Evidence from Bantu. *Natural Language and Linguistic Theory* 13. 181–254.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: The MIT Press. [安井稔 (訳) 『文法理論の諸相』 (研究社, 1970年) ].
- Chomsky, N. (1980). *Rules and representations*. New York: Columbia University Press.
- Dalrymple, M. (2001). *Lexical Functional Grammar*, vol. 34 of *Syntax and Semantics*. San Diego: Academic Press.
- Emonds, J. E. (1978). The verbal complex of V'–V in French. *Linguistic Inquiry* 9. 151–175.
- Falk, Y. (2001). *Lexical-Functional Grammar: An introduction to parallel constraint-based syntax*. Stanford, CA: CSLI Publications.
- Fodor, J. A., Bever, T. G. & Garrett, M. F. (1974). *The psychology of language: An introduction to psycholinguistics and generative grammar*. New York: McGraw-Hill. [岡部慶三, 広井脩, 武藤隆 (訳) 『心理言語学—生成文法の立場から』 (誠信書房, 1982年) ].
- Grimshaw, J. (2003). Extended projection. Rutgers University.
- Kaplan, R. M. & Bresnan, J. (1982). Lexical-Functional Grammar: A formal system for grammatical representation. In Bresnan, J. (ed.), *The mental representation of grammatical relations*, Cambridge, MA: MIT Press. 173–281.
- King, T. H. (1995). *Configuring topic and focus in Russian*. Stanford, CA: CSLI Publications.
- Koenenan, O. & Ziejstra, H. (2010). Resurrecting the rich agreement hypothesis: Weak isn't strong enough. In An, D. & Kim, S. (eds.), *Movement in minimalism: Proceedings of the 12th Seoul Conference on Generative Grammar*.
- Kroeger, P. (1993). *Phrase structure and grammatical relations in Tagalog*. Stanford, CA: CSLI Publications.
- Kroeger, P. R. (2004). *Analyzing syntax: A lexical-functional approach*. Cambridge: Cambridge University Press.
- Luís, A. & Otaguro, R. (2004). Proclitic contexts in European Portuguese and their effect on clitic placement. In Butt, M. & King, T. H. (eds.), *Proceedings of the LFG04 conference*. Stanford, CA: CSLI Publications. 334–353.
- Luís, A. & Otaguro, R. (2005). Morphological and syntactic well-formedness: The case of European portuguese proclitics. In Butt, M. & King, T. H. (eds.), *Proceedings of the LFG05 conference*, Stanford, CA: CSLI Publications.
- Luís, A. R. & Otaguro, R. (2011). Inflectional morphology and syntax in correspondence: Evidence from European Portuguese. In Galani, A., Hicks, G. & Tsoulas, G. (eds.), *Morphology and its interfaces*, Amsterdam: John Benjamins. 187–225.
- Luís, A. R. & Otaguro, R. (2012). Non-isomorphism and microvariation: A comparative analysis of pronominal clitics in European and Brazilian Portuguese. Paper presented at Clitics and Beyond, University of Göttingen, Germany.
- Otaguro, R. (2006). *Morphosyntax of case: A theoretical investigation of the concept*. Ph.D. dissertation, University of Essex.
- Otaguro, R. (forthcoming). Constructional paradigm in constraint-based morphosyntax: A case of Japanese verb inflection. *Proceedings of the Annual Meeting of the Berkeley Linguistic Society* 38.
- Pollock, Y. (1989). Verb movement, Universal Grammar, and the structure of IP. *Linguistic Inquiry* 20. 365–424.
- Roberts, I. (1993). *Verbs and diachronic syntax*. Dordrecht: Kluwer Academic Publisher.
- Roberts, I. (2007). *Diachronic syntax*. Oxford: Oxford University Press.
- Rohrbacher, B. W. (1999). *Morphology-driven syntax: A theory of V to I raising and pro-drop*. Amsterdam: John Benjamins.
- Sadler, L. (1997). Clitics and the structure-function mapping. In Butt, M. & King, T. H. (eds.), *Proceedings of the LFG97 conference*. Stanford, CA: CSLI Publications.
- Sadler, L. & Spencer, A. (2001). Syntax as an exponent of morphological features. In Booij, G. & van Marle, J. (eds.), *Yearbook of morphology 2000*, Dordrecht: Kluwer Academic Publishers. 71–96.
- Sells, P. (2001). *Structure, alignment and optimality in Swedish*. Stanford, CA: CSLI Publications.
- Sells, P. (2003). Stylistic fronting in Icelandic: A base-generated construction. *Gengo Kenkyu* 123. 257–297.
- Sells, P. (2005). The peripherality of the Icelandic expletive. In Butt, M. & King, T. H. (eds.), *Proceedings of the LFG05 conference*, Stanford, CA: CSLI Publications. 408–428.
- Simpson, J. (1991). *Warlpiri morpho-syntax: A lexicalist approach*. Dordrecht: Kluwer Academic Publisher.
- Vikner, S. (1997). V<sup>0</sup>-to-I<sup>0</sup> movement and inflection fro person in all tenses. In Haegeman, L. (ed.), *The new comparative syntax*, London: Longman. 189–213.
- Watanabe, A. (1994). The role of triggers in the extended split INFL hypothesis: Unlearnable parameter settings. *Studia Linguistica* 48. 156–178.