

Acquisition and Ergativity: An Overview

1 Introduction

The acquisition of ergative patterns sits at the intersection of typological and developmental linguistics and thus has much to offer both. Ergative phenomena, in particular systems involving split ergativity, pose a significant challenge to theories of acquisition. Likewise, developmental data and learnability considerations shed light on basic issues in the study of ergativity. Despite the natural fit between the disciplines, the bulk of acquisition research has focused on accusative languages, and the bulk of ergativity research has focused on descriptive adequacy for adult language. This paper highlights the interconnections between the two fields, showing how each has informed (or potentially could inform) the other.

The remainder of Section 1 briefly surveys the main issues raised by researchers working in this intersection area. In Section 2 I review some of the patterns observed in the literature for the acquisition of morphological and syntactical ergativity. I then revisit the larger issues in Sections 3 and 4: Section 3 discusses some theoretical frameworks that have been proposed for grammar acquisition and the extent to which they can account for the acquisition of ergative patterns, and Section 4 touches on some issues in the study of ergativity in light of the requirements of and evidence from child language acquisition.

1.1 Challenges of ergativity

Ergativity does not in principle constitute a problem for acquisition. The defining characteristic of ergative patterns given in the standard reference on ergativity (Dixon 1994) – that they treat the intransitive subject S in the same way as the transitive object O, and differently from the transitive subject A – relies on a distinction between intransitive and transitive clauses (and their arguments). This difference could be the syntactic difference between a 1- and 2-argument clause, or the semantic difference between a 1- and 2-participant scene (e.g., an action of one participant vs. a transitive interaction between two participants); it could also depend on both kinds of distinction. However the distinction is viewed, the learning problem does not differ significantly from that faced for accusative patterns. In either case, learning this distinction requires that the S and A argument are (at least initially) distinct, and can independently become associated with morphological or syntactic patterns.

Empirically, however, the challenge posed by ergative phenomena arises from its sheer variety and unpredictability: ergativity is not an absolute or binary feature of a language, and most languages have systems that are in some way divided between ergative and accusative patterning (Dixon 1994). Tables 1.1 and 1.2 (taken from Van Valin 1992) illustrate two of the salient complications faced by a child learning a language with ergative phenomena. Languages exhibiting split ergativity require both ergative and accusative marking, conditioned on some other syntactic or semantic factor;

some of these are listed in Table 1.1. In some cases, the split may turn on whether the marking device is morphological or syntactic (shown in Table 1.2). Dyirbal, for example, is syntactically ergative, while it is morphologically split between ergative for 3rd-person pronouns and accusative for 1st- and 2nd-person pronouns. Both kinds of split make the problem significantly harder: the data appears less consistent, and multiple factors must be correlated to account for the regularities. Any theory of acquisition must allow for such ergative/accusative splits, and must further account for how children discover the factors that condition those splits.

Conditioning Factor	Language(s)
Main vs. Subordinate Clause	Jacaltec
Tense/Aspect	Hindi, Georgian
NP Case vs. Verb Agreement	Enga, Kaluli, Georgian, Warlpiri
Inherent Lexical Content	Kaluli, Dyirbal, Mparntwe Arrernte
Pragmatic Function	Kaluli, Mparntwe Arrernte

Table 1.1: Conditioning factors for split ergative systems

Language	Case-Marking Pattern	Syntactic Pattern
Dyirbal: 1st & 2nd person	Accusative	Ergative
3rd person	Ergative	Ergative
Warlpiri: NP case	Ergative	Accusative
Cross-reference	Accusative	Accusative
Jacaltec: Tensed clauses	Ergative	Ergative, Accusative
Tenseless clauses	Accusative	Neither

Table 1.2: Split morphological and syntactic ergativity

1.2 Implications of acquisition

Studies of child language acquisition have long provided at least indirect evidence about the nature of the language faculty. Most notably, early theoretical learnability results have shaped the debate on the degree to which language and/or grammar is innately specified: Gold's (1967) theorems regarding the learnability of certain classes of languages (in which the task is cast as the induction of a grammar that generates a set of strings) has often been used, in conjunction with the observation that children do not receive negative evidence, to support nativist claims. The relative roles of syntactic and semantic biases in language learning have likewise influenced the underlying linguistic representations posited in syntactic theory.

Acquisition data has also been applied in the context of the more specific issues raised by ergativity. Children do not exhibit significantly more difficulty acquiring ergative markings than accusative markings, nor do split ergative systems seem to delay learning. Like accusative patterns, ergative case markers and syntactic patterns are acquired relatively early and without much error, often appearing in the child's productions by the end of the second year. The ease with which both accusative and ergative markings are acquired may suggest that the representations being acquired

do not intrinsically favor one or the other. It may also illuminate the more basic issue of how such patterns (ergative or accusative) are represented. Focusing on ergativity for now, we can ask whether the hallmark of ergativity is (1) the association of S with the O argument, or rather (2) the association of some distinguishing marking with the A argument.

If the marking pattern serves to (1) associate S with O, one would expect some overgeneralization of the ergative marking on the A argument, in particular to S arguments with characteristics in common with transitive agents. But if the marking pattern instead serves to (2) distinguish A from O in transitive constructions, then no such overextensions of ergative marking to S are expected. In this case, the fact that S and O are frequently marked the same way (often this absolutive case is not overtly marked) results not from any natural grouping but instead from the fact that each independently takes on the unmarked/default status in the relevant clause in which it appears. The evidence seems to support this latter view:

Such overextensions are extremely rare in the studies of the acquisition of ergative languages and are virtually nonexistent in the studies of the acquisition of accusative languages. (Van Valin 1992)

Note, however, that this evidence is most revealing with respect to the learning problem faced by the child; it does not necessarily reflect the usage patterns and representations active in adult systems (although the child and adult systems are likely to bear some relation to one another!). Moreover, this view of ergative marking does not in itself rule out the possibility that A and S still form some natural grouping, what Dixon terms a universal subject category. I will return to this issue in Section 4.

2 Developmental data

This section reviews some developmental data in more detail, highlighting findings in the acquisition of morphological and syntactic ergativity that pose a particular theoretical challenge.

2.1 Morphological ergativity

As mentioned, accusative and ergative morphology is acquired during roughly the same time frame, typically around the second birthday. Examples of unproblematic markings include (along with sample approximate age of acquisition) Japanese accusative case (2;0), Polish accusative case (1;7); Kaluli ergative case (2;2 to 2;4); K'iche' ergative case (2;1 to 2;10); and Georgian ergative case (2;0). Errors in the form of overextensions or misapplications of a marker are quite rare in these and other languages. More variation and development, however, can be seen in errors of omission. In K'iche', for example, the ergative case marking initially appears in 20-50% of its obligatory contexts, and the child typically undergoes a period of development (sometimes a year or longer) during which the percentage gradually rises to near full usage in obligatory contexts (Pye 1992).

The acquisition of split ergative patterns suggest that certain factors serve as natural conditions for the earliest acquired split markings. Georgian, for example, has accusative patterning for

imperfective/present-tense verbs and ergative patterning for perfective/past-tense verbs, but the ergative marker is never extended to subjects of present-tense verbs. Similarly, Kaluli has accusative verb agreement and ergative case-marking, conditioned on human-ness or kinship: A arguments in OAV order receive ergative marking, while A arguments in AOV order receive ergative marking only if both A and O are proper names or kinship terms.

It seems to be somewhat more difficult to acquire markings on closed-class items than markings on open-class items. German accusative marking, for example, is typically acquired by 2;2 for adjectives, but is prone to error for articles for several more years.

2.2 Syntactic ergativity

Ergative syntax is similarly unproblematic for children to learn, and does not appear to be any harder to learn than morphological reflexes of ergativity. In fact, in some of the special cases considered below, ergative syntax may arise in the speech of a child whose target language does not exhibit any ergative syntax, suggesting that communicative pressure to express the relevant distinction (e.g., between A and O) can lead to ergative innovations.

2.2.1 K'iche': interaction of ergativity and focus

K'ich'e (and Kaluli) can be described as having syntactic restrictions on focus operations that behave ergatively; accessibility to the A argument is restricted in questions, relative clauses, and focus constructions. To question or focus the A argument, its marking must be changed from the ergative (E) to the focus antipassive (FA) form, as illustrated in example (1b), taken from Pye (1990). Such restricted access does not apply to either the S or the O:

- (1) a. jas k-0-u:-b'an le: patax
 what INCOMP-3A-3E-do the duck
 'What is the duck doing?'
 b. jachi:n x-0-ya'ow le: su't chi-aw-e:ch
 who COMP-3A-give-FA the cloth to-2E-possession
 'Who gave the cloth to you?'

Since learning this pattern requires the coordination of pragmatic function, syntactic construction or operation, and ergativity status, it is no surprise that it is harder to learn these restrictions than it does to learn the basic ergative morphology.

2.2.2 Bennish: ergativity in English?

Although English is manifestly non-ergative, Sadock (1982) documents a case in which a child learning English appears to have imposed syntactic ergativity in the expression of particular constructions. Dubbed Bennish (for the child Ben), this (probably short-lived) idiolect used an ergative word order pattern for the optative mood (expressing wishes and desires). In the Bennish idiolect,

the S and O arguments both appear after the verb (or verb plus particle), as in (2), and the A appears as the object of a *for*-headed prepositional phrase sentence-finally, as in (3):

(2) Bennish intransitive (S postverbal)

- a. Fall down Daddy.
'Daddy should fall down.'
- b. Eat Benny now.
'Let Benny eat now.'

(The intransitive pattern superficially resembles an imperative construction, but did not have imperative intonation or require an addressee.)

(3) Bennish transitive (O postverbal, *for*-marked A)

- a. Pick up Benny for Daddy.
'Daddy should pick Ben up.'
- b. Read a story for Mommy.
'Mommy should read a story.'
- c. Erase it for Daddy.
'Daddy should erase it.'

Additional evidence of this ergative pattern can be seen in variants involving reduplication to express emphasis (4) and use of a matrix clause headed by *want* with an infinitival complement (5):

(4) Bennish emphatic (reduplicated particle)

- a. Pick up Benny up for Daddy.
'Daddy must pick Ben up!'
- b. Wake up Daddy up!
'Daddy must wake up!'

(5) Bennish *want* + complement

- a. I want to sit down Maggie.
'I want Maggie to sit down.'
- b. I want to hold him for Mommy.
'I want Mommy to hold him' (= Ben)

Besides providing a useful counterbalance to the standard portrayal of language acquisition as easy and error-free, the Bennish sub-dialect of English happens to exhibit split ergativity conditioned by mood.

2.2.3 Samoan: interaction of ergativity and sociolinguistic factors

Samoan provides another case in which an ergative pattern is acquired after an unusual delay. Transitive sentences in Samoan have flexible word order, and the ergative marker *e* is required only for those word orders in which the A argument follows the verb (S and O arguments are always zero-marked). Some examples of this pattern, which mixes a morphological marking with a syntactic conditioning factor, follow (Ochs 1982):

- (6) Transitive Sentence: 'The boy hit Sina.'
- a. Na fasi e le tama Sina. (VAO)
 PAST hit ERG ART boy Sina
- b. Na fasi Sina e le tama. (VOA)
 PAST hit Sina ERG ART boy
- (7) Intransitive Sentence: 'The boy is sleeping.'
- 'Olo'o moe le tama. (VS)
 PRES.PROG sleep ART boy

This pattern appears very late in Samoan children. "Children between the ages of three and four use the case-marking in less than 5% of the obligatory grammatical contexts, and younger children do not use it at all" (Ochs 1982, 647). Interestingly, there is some evidence that before this ergative marker appears, word order usage of Samoan children may reflect an underlying ergative pattern. Samoan children have a very low frequency usage of VAO, the dominant pattern in adult Samoan: "What has been considered as the basic word order of Samoan, namely verb-subject-object [VAO]..., is NOT DEVELOPMENTALLY BASIC" (Ochs 1982, 663). Instead, young Samoan children exhibit a strong preference for VOA or AVO in transitive clauses (and a dispreference for VAO), and for VS in intransitive clauses. The preferred word orders keep the V and O arguments together (possibly reflecting a V-O gestalt); thus the argument following V is always either S or O, resulting in an ergative pattern.

Ochs' study is also notable for uncovering some of the sociolinguistic factors affecting acquisition. To understand the delayed acquisition of the ergative marker, Ochs hypothesized that the marker was difficult to acquire because it was not perceptually salient enough. In fact, Samoan has only four out of 11 perceptual features proposed to facilitate learning (shown in bold): postposed, **syllabic**, stressed, obligatory, tied to noun, **consistent with word-order patterns**, rationally ordered, non-synthetic, only grammatical functions, **regular**, consistently applied to all pro-forms, **distinct** (no homonymous case-markers). But this explanation turns out to be incomplete, since Kaluli ergative marking is similarly challenging but learned much earlier. To account for the difference, Ochs studied the usage patterns of Samoan caregivers, observing not just the difference between caregiver speech to children and adults but also differences between speech directed at intimates versus speech directed at strangers and outsiders. Ergative case marking turns out to vary dramatically based on sociolinguistic status: ergative marking is rare within households, and comparatively rare in women's speech.

3 Theoretical frameworks for acquisition

This section presents a brief and highly selective review of some models of acquisition that have been proposed in the literature, focusing on the compability (or lack thereof) of certain mainstream models with the facts of ergativity.

3.1 Parameter-setting

Formalists of the Chomskyan persuasion adhere to some version of the Principles and Parameters party line (Wexler & Manzini 1987; Hyams 1986), in which the innate capacity for language is manifested as a Universal Grammar with a limited set of (syntactic) parameters whose various combinations give rise to the possible languages of the world. The limited set of options makes the problem formally tractable; proposed parameters include pro-drop (controlling whether pronominal subjects can be omitted) and the similar null-subject (controlling when null subjects are allowed).

Unsurprisingly, an “ergative” parameter has been proposed (Baker 2001), but it is clear that such a binary parameter is totally inadequate given the body of research on ergativity: ergativity is not an all-or-nothing phenomenon; conditions for ergative marking vary across and within languages; there is an asymmetry between the relative homogeneity of accusative languages and the split nature of morphologically/syntactically ergative languages. It is perhaps not entirely inconceivable that some more sophisticated take on such a parameter could be rigged up to account for some subset of the data. But a parameter-based approach doesn’t allow for construction-specific rules or the influence of semantic factors and would thus have difficulty explaining the syntactic diversity available within a single language, let alone any reasonable cross-linguistic sampling.

3.2 Semantic bootstrapping

An alternative approach is that of semantic bootstrapping (e.g., Pinker (1989)), in which a single, universal system of mappings between semantic roles (including agent and patient) and syntactic relations (including subject and object) is assumed. Within this framework, children must learn to associate either the patient or the agent with a subject notion that applies consistently throughout the grammar. These approaches rely on innately specified linking rules to associate semantic roles and syntactic relations; typically, the agent role is linked to the subject function, and the patient role is linked to the object function. Typically, however, the linking rules are unable to accommodate the possibility of ergative marking, thus undermining their intended universal status. Pinker acknowledges the problem and attempts to resolve it by allowing some flexibility in the application of linking rules, and making an additional distinction between the agent and an intransitive actor. Effectively, the linking rules are said to apply only when they do not conflict with the morphological case-marking system:

Agents are linked to objects, while patients, morphologically identical to intransitive actors and themes, are made to mimic them by also being linked to subjects.... The linking rules mapping intransitive actors and themes to surface subjects are retained;

the linking rules for the other two kinds of thematic roles, however, are bent to be consistent with the ergative morphology. (253)

It is fair to say that universal linking rules and their permissible violations have not yet been thoroughly worked out. While Pinker claims that “nothing hinges on the details of this rough sketch for the vast majority of languages, which are not syntactically ergative,” (253) it is not clear how the remaining details of the sketch could be filled in to accommodate the patterns found in the literature. The general strategy of bending the rules to adhere to ergative morphological marking would encounter difficulty in handling languages like Dyirbal that exhibit both ergative and accusative morphology. Also, the case studies of Bannish and Samoan provide examples in which syntactic ergativity is acquired in the *absence* of ergative morphology. Overall, semantic bootstrapping approaches take a step in the right direction by making at least some reference to semantic information and its correlations with distinct syntactic relations. But linking rules as they have been formulated so far do not show much promise for explaining the kinds of ergative splits that do occur and what processes drive their acquisition.

3.3 Cognitively motivated approaches

Both parameter-setting and semantic bootstrapping assume some universal syntactic categories; the latter also presumes a set of semantic roles. Cognitively motivated accounts describe a much richer set of semantic/pragmatic factors available to the language learner: children are assumed to draw on general cognitive mechanisms to map functors (both morphological and syntactic marking) onto a (universal) set of basic, language-neutral notions (Slobin 1985). Instead of independently defined semantic roles, the basic language-neutral notions are described in terms of prototypical scenes involving a set of co-defined participant roles. For example, the manipulative activity scene is a “basic causal event in which an agent carries out a physical and perceptible change of state in a patient by means of direct body contact or with an instrument under the agent’s control” (Slobin 1985, 1175). Ergative and/or accusative markers are associated with this scene, or with a particular participant in this scene.

The characterization of the mapping problem in terms of functors that become associated with prototypical scenes comes closer to capturing the cross-linguistic variety of marking patterns than the previously described approaches. The representational burden is effectively shifted to the cognitive/semantic arena, vastly increasing the possibilities for learning. While such added representational power seems essential for handling ergative phenomena, it does raise the issue of whether the child will be overwhelmed by the increased search space, especially given the orientation toward accounting for error-free acquisition without negative examples. An early hypothesis to deal with this problem was Slobin’s (1985) speculation that marking would be learned first for prototypical scenes, and later extended (by similarity, metaphor, etc.) to less prototypical cases. But examination of the developmental data shows no particular precocity in the use of markers with prototypical scenes (compared to atypical scenes). Instead, “the children’s use of case marking, word order, etc., seems to reflect the morphological pattern of the adult language” (Pye 1990, 1296). In sum, cognitively motivated approaches appear to be representationally adequate for expressing the kinds of mappings needed for ergative phenomenon but tend to stop short of describing the processes for arriving at the correct (and restricted) set of actual mappings.

3.4 Distribution- and exemplar-based learning

While the previous approaches focused on representational biases that constrain the learning problem, the ones to which we now turn are more concerned with the principles guiding the acquisition process. More specifically, distributional correlations between syntax and semantics (or a functor and its meaning or content) have been proposed to serve as the basis for acquisition and generalization (Maratsos & Chalkley 1980). The idea of the language-learning child as an expert statistician has gained considerable credence in recent years, particularly in the realm of learning phonological patterns based on brief exposure (Saffran *et al.* 1996). Closely related is the idea of exemplar-based learning: actual data (e.g., words and their meanings; utterances and their accompanying situations) provide the initial linguistic models, which can then be generalized or otherwise modified to accommodate a larger set of communicative circumstances. This fits well with evidence that lexical items can be acquired based on very few exposures, through a process dubbed *fast mapping* (Bloom 2000).

In a similar vein, Tomasello (1992) proposes that phrasal and clausal constructions are first learned on a verb-specific basis, and only later generalized to form the canonical transitive and intransitive constructions. That is, the earliest constructions are lexically specific *verb island constructions* (each verb forming its own island of organization, with no initial relation between it and the behavior of other verbs) correlating some syntactic patterning based around a specific verb with some semantic situation, like the manipulative activity scene proposed by cognitive approaches. Later, after a critical mass of verb island constructions have been acquired, generalizations over those constructions can be extracted by general learning procedures.

The success of such an approach depends crucially on regularity in the data. Morphological marking, for example, should be relatively consistent; even if a language exhibits split ergativity, the more consistent the split, the easier learning will be. There must of course also be regularity in the input data, such that markers are not omitted too frequently (as in the Samoan examples). Finally, the use of ergative marking on productive lexical classes should facilitate acquisition, since the correlation with specific, concrete semantic properties should be easier to extract for these than for closed-class items.

Some other predictions of a distributional/exemplar-based model also seem to fit the requirements imposed by both acquisition and ergativity. There should be no reason for transitive and intransitive markers not to be learned at the same time: the markers would be associated with different scenes (say, a self-propelled motion scene and the manipulative activity scene) and could be learned independently. Likewise, different scenes can be associated with either ergative or accusative morphology; for that matter, the same scene can be associated with both ergative and accusative morphology! Split ergativity should also pose no extra problem, nor should the syntactic and morphological markers necessarily be consistent. Overall, the flexibility of acquiring marking patterns on a case-by-case basis seems perfectly suited to accommodating the diversity of possible ergativity patterns. Moreover, the relatively error-free course of acquisition can be attributed to the acquisition of many specific (and correct) models; conservative generalization over those models would occasionally lead to overgeneralization and a minimal error rate.

The main problem with this approach is that it may be *too* permissive. Some learning bias on the possible kinds of representations would be useful. Fortunately, this is precisely where constraints

based on cognitive principles can be incorporated. It is also possible that the kinds of constraints expressed by parameters and linking rules may have a role to play. In short, distributional and exemplar-based approaches provide a useful general framework for explaining the course of acquisition, while cognitively motivated approaches (and to a lesser extent parameter and semantic bootstrapping) provide some representational learning bias to account for cross-linguistic universals. A definitive specification of these biases, as well as the set of operations guiding generalization processes, has yet to be fully described (but one of these days a thesis is scheduled to come along to flesh out an approach along these lines!).

4 Issues

Most of the interaction between studies of ergativity and acquisition has dealt with implications of the former for the latter, and not vice versa. There are, however, a few general issues for which acquisition data has been cited, although usually anecdotally or as indirect support. This section briefly touches on several of these.

- Universality of S, A, O as basic semantic relations

Dixon (1994) makes a strong case for a basic three-way semantic distinction among S, A, and O. One piece of evidence marshalled for this distinction is the development pattern for children acquiring the Kaluli ergative case-marking system described earlier. The children initially do not put any marking on A arguments; they then go through a stage in which all A arguments receive ergative marking. Finally, they transition into the adult system, in which only certain A arguments (those in OAV order, and those in AOV order only if A and O are both proper names or kinship terms) receive ergative marking. Notably, the early overgeneralization of ergative marking applies only to A arguments, and never to S arguments. Thus, as described in Section 1, development data suggest that A and S (and certainly O) are easily distinguishable for the child, at least for learning case markers.

- Universality of subject category

Dixon also, however, believes that A and S form a natural ‘subject’ grouping within the more general A, S, O primitives, though acquisition patterns supporting this claim do not seem particularly decisive: markers that group A and S are acquired without difficulty, and no later than individual markers of A, S, or O. One possibility is that the semantic representations of these participants have component features (animacy, use of energy, salience, etc.), and different categorization criteria group the three arguments differently. Under this view, the three participants are in some sense basic (since they are clearly canonical roles in prototypical scenes), but they are not quite primitives. This proposal is similar to those of Langacker (1987) or Talmy (2000), and the facts of cross-linguistic child language seem to call for fine-grained semantic schematizations that can be combined in different gestalt-like scenes (Slobin 1985).

- Existence of syntactically ergative languages

The existence of syntactically ergative languages appears to have sparked some controversy at an earlier point in the study of ergativity. Marantz’s (1984) Ergativity Hypothesis supported

the existence of syntactically ergative languages with an underlying syntactic structure grouping the ergative A NP with the V. Learnability considerations seemed to indicate that such an underlying syntactic ergativity would be impossible for children to acquire. It is worth noting that the debate took place within a Government-Binding context; at least to an outsider, this application of formal learning theory to language acquisition seems reminiscent of the use of Gold's Theorem to support nativist claims about grammatical structure, and likewise may reveal more about the inadequacy of the problem statement than about typological universals. In any event, syntactic ergativity seems to have been fairly well documented by Dixon (1994) in the interim.

5 Conclusion

Theory-internal squabbling aside, it seems that central questions in the study of ergativity can be fruitfully addressed from the perspective of child language acquisition. Theoretical models of acquisition can in turn be enriched and tested by data from the acquisition of ergative patterns. Although the interaction between these fields remains at an early stage, the incorporation of convergent constraints from different disciplines, both within linguistics and across the sciences, is surely a precursor to a deeper understanding of fundamental issues in the study of language, cognition and learning.

References

- BAKER, MARK C. 2001. *The Atoms of Language: The Mind's Hidden Rules of Grammar*. Basic Books.
- BLOOM, PAUL. 2000. *How Children Learn the Meanings of Words*. Cambridge, MA: MIT Press.
- DIXON, R.M.W. 1994. *Ergativity*. Cambridge University Press.
- GOLD, E.M. 1967. Language identification in the limit. *Information and Control* 16, 447–474.
- HYAMS, NINA M. 1986. *Language Acquisition and the Theory of Parameters*. D. Reidel Publishing Company.
- LANGACKER, RONALD W. 1987. *Foundations of Cognitive Grammar, Vol. 1*. Stanford University Press.
- MARANTZ, A.P. 1984. *On the Nature of Grammatical Relations*. Cambridge, MA: MIT Press.
- MARATSOS, M., & M.A. CHALKLEY. 1980. The internal language of children's syntax. In *Children's language*, ed. by K. Nelson, volume 2, 127–213. New York: Gardner Press.
- OCHS, ELINOR. 1982. Ergativity and word order in Samoan child language. *Language* 58(3), 646–671.

- PINKER, STEVEN. 1989. *Learnability and Cognition: The Acquisition of Argument Structure*. Bradford Books.
- PYE, CLIFTON. 1990. The acquisition of ergative languages. *Linguistics* 28(6), 1291–1330.
- . 1992. The acquisition of k'iche' maya. In (Slobin 1992), chapter 4.
- ROBERT D. VAN VALIN, JR. 1992. An overview of ergative phenomena and their implications for language acquisition. In (Slobin 1992), chapter 1.
- SADOCK, J.M. 1982. The Bannish optative: a spontaneous ergative construction in child speech. In *Proc. Chicago Linguistic Society*.
- SAFFRAN, JENNY R., RICHARD N. ASLIN, & ELISSA L. NEWPORT. 1996. Statistical learning by 8-month-old infants. *Science* 274, 1926–192.
- SLOBIN, DAN ISAAC. 1985. Crosslinguistic evidence for the language-making capacity. In *Theoretical Issues*, ed. by Dan Isaac Slobin, volume 2 of *The Crosslinguistic Study of Language Acquisition*, chapter 15. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- (ed.) 1992. *The Crosslinguistic Study of Language Acquisition, Volume 3*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- TALMY, LEONARD. 2000. *Toward a Cognitive Semantics*. MIT Press.
- TOMASELLO, MICHAEL. 1992. *First verbs: A case study of early grammatical development*. Cambridge, UK: Cambridge University Press.
- WEXLER, K., & R. MANZINI. 1987. Parameters and learnability in binding theory. In *Parameter Setting*. Reidel.