The acquisition of languages with complex morphology can bring interesting evidence to bear on the question of whether or not children can use semantic/perceptual information to help them start to learn the syntax of their language (the “semantic bootstrapping” hypothesis of Pinker (1984, 1989, 1994)). In this paper, I will investigate the role that semantic bootstrapping can play in the acquisition of one type of morphology; case-marking inflection.

This is an interesting question because language acquisition research generally has not paid enough attention to morphology. Moreover, there has been debate in the literature about whether semantic bootstrapping can or not account for ergative languages, with for example Pinker (1984, etc.) arguing that it can and Pye (1990) arguing that it cannot. I will argue that semantic bootstrapping can account for the acquisition of case marking inflection in ergative languages (although not exactly in the manner that Pinker suggests), but that case-marking in split ergative languages is problematic for semantic bootstrapping. I’ll first briefly describe the linguistic facts that are important for background then review the semantic bootstrapping hypothesis, and then discuss the acquisition data to be examined.

Languages vary in how they mark relations like subject, object, etc. Generally speaking, some languages use nominal inflection (case-marking) instead of word order. Languages also vary in the way in which they group together the three basic relations; subject of intransitive verb, subject of transitive verb, object of transitive verb (see Dixon (1994), for example). Basically, there are two basic systems in language. The first is grouping together subjects of intransitive verbs and subjects of transitive verbs, and differentiating them from objects of intransitive verbs, called a NOMINATIVE-ACCUSATIVE system, and the second is grouping together subjects of intransitive verbs and objects of transitive verbs and differentiating them from objects of transitive verbs, called an ERGATIVE-ABSOLUTIVE SYSTEM.

These two different systems allow for three possibilities in the way that languages group together the basic arguments in sentences. Some languages, ACCUSATIVE LANGUAGES, use the first (nominative-accusative) system, e.g. English, French, Russian. Some languages, ERGATIVE LANGUAGES, use the second (ergative-absolutive) system, e.g. Basque, Inuktitut, K’iche’ Maya. Some languages, SPLIT ERGATIVE LANGUAGES, use a combination of both systems, e.g. Hindi, Georgian, Tsimshian. I’ll focus here on ergative and split ergative languages.

Inuktitut is an example of an ergative language. The examples in (1) show the case marking pattern of Inuktitut. The example in (1a) shows an intransitive verb and the example in (1b) shows a sentence with a transitive verb. These examples show that Absolutive case (ABS) is assigned to the subjects of intransitive verbs and the objects of transitive verbs, and Ergative case (ERG) is assigned to the subjects of transitive verbs.

Inuktitut

(1) Inuktitut

a. Jaani tikit -juq
   Johnny(ABS) arrive -MOOD&AGR
   ‘Johnny arrived.’ (from Allen (1994: 15))

b. arnaq -up qimiq taku -vaa
   woman -ERG dog(ABS) see -MOOD&AGR
   ‘A/the woman saw the dog.’ (from Kalmár (1979: 87))

Georgian is an example of a language that has a split ergative system. The factors that condition this split are quite complicated, but principally involve verb class, and tense/aspect, but also include grammatical person and whether a full NP or pronoun is used.

The examples in (2) and (3) below show how Georgian case-marking splits according to the tense/aspect of the verb. The examples show two different tense/aspects; the present tense and the aorist (a past tense for actions that are neither complete nor incomplete) respectively. In each example the (a) cases show the same intransitive verb, and the (b) cases show the same transitive verb. These examples show that sentences with the verb in the present tense (shown in (2)) have a nominative case marking pattern while sentences with the verb in the aorist tense have an ergative case marking pattern.

(2) Georgian: Present

a. Student -i midis
   student -NOM goes
   ‘The student goes.’

b. Student -i ceril -s cers.
   student -NOM letter -ACC writes(P)
   ‘The student writes the letter.’

(3) Georgian: Aorist

a. Student -i movida
   student -NOM went(AOR)
   ‘The student went’

b. Student -ma ceril -i dacera
   student -ERG letter -NOM wrote(AOR)
   ‘The student wrote the letter.’

The case-marking patterns in Georgian are even more complicated, because there are different possible splits, and different possible factors that condition the split. For example, there is a relatively small class of intransitive verbs (several hundred), called, descriptively, MEDIAL verbs which occur with the subject in ergative case when there is a third person subject (Merlan 1985). This verb class includes the verbs meaning ‘cry’, ‘sing’, ‘dance’, ‘work’, ‘play’ and ‘speak’ (Nash 1995). An example of a sentence with a verb of this type is shown in (4).
Comparing the sentences in (4) and (3a), it is clear that there are cases in Georgian where intransitive verbs have exactly the same structure and morphological marking, but different case marking on the subject. (Note that even though the medial verb in the example given here has the prefix i- and the intransitive case above does not, this prefix is not correlated with the case-marking patterns. That is, it is possible to have an intransitive verb with this prefix, and the typical intransitive nominative-accusative case-marking pattern (Nash 1995, Aronson 1990).)

Pinker (e. g. 1984, 1989, 1994, following Grimshaw (1981) and Macnamara (1982)) has suggested “semantic bootstrapping” to account for children’s beginning acquisition of syntax. Pinker postulates that children are born with a linking between some semantic categories (e.g. agent of action) and syntactic category (e. g. subject of active sentence). Then, they use basically real world/contextual information to identify the semantic category to “bootstrap” their way into the syntax. So, continuing with the above examples, on hearing a sentence and identifying the agent, they can determine that syntactic position is subject position which then allows for further generalizations.

The application of semantic bootstrapping to ergative languages would seem to be somewhat complicated. The complication comes in with the fact that subjects (agents) are sometimes marked in one way and sometimes in another. Pye (1990) argues that this is a problem for semantic bootstrapping, but I will argue that it actually is compatible with semantic bootstrapping, because this difference in the linking rules between subjects and case-marking is tied to the transitivity of the verb and since there are linguistic cues, other than case marking, to the transitivity of the verb in ergative languages (e.g. nature of the agreement on the verb in Inuktitut (Fortescue 1984), transitive marker in Ki’che’ Maya (Pye 1985)), in addition to a clear difference in the number of arguments, it seems possible that children could perform this linking. There is also evidence that children learn transitivity early (cf. Pye (1985) on K’iche’ Maya).

Split ergativity definitely poses problems for semantic bootstrapping as an explanation for how case marking is acquired in these languages. There is, first of all, the problem that particular roles are associated with several different case markers. Semantic bootstrapping relies crucially on regular linking rules. It would be possible for a proponent of semantic bootstrapping to argue that although the linking rules are inconsistent in split ergative languages, they are correlated with other linguistic elements, so are, in fact retrievable by the child, assuming that the child is sensitive to these other factors (tense, animacy, etc.). So, assuming that there is linguistic marking correlated with the split, the use of semantic bootstrapping to learn case marking inflection becomes significantly more difficult, although perhaps not impossible. The more factors conditioning the split, the more complicated the situation becomes, because the child has to correlate several factors simultaneously.

Also, it is worth noting that the more factors there are conditioning the split, the less likely that the child will hear examples of each relevant possibility, although it is difficult to know the significance of this, without knowing actual frequency data and without knowing what the threshold for the child is, i. e. it is not clear what constitutes enough examples.

Using semantic bootstrapping to learn case marking in a split ergative language would certainly be complicated at best.

However, the case of Georgian “medial” verbs compared with regular intransitive verbs presented in (3a) and (4) above show a situation where the linking rules are unreliable and there is no linguistic other linguistic marking that correlates with the mismatch in the linking rules.

This situation is problematic for a semantic bootstrapping explanation for the acquisition of case-marking, because there is simply no way for a child to bootstrap from their knowledge that the subject in each case above is the actor to knowing which case should be used.

However children do in fact learn Georgian case-marking early and perfectly (Imedadze and Tuite 1985). This lack of difficulty with case that Georgian children exhibit is illustrated in the following example, which shows correct use of ergative case-marking iwith an intransitive verb, precisely the situation described above which is problematic for semantic bootstrapping.

(5) Correct use of ERG with intransitive verb in 2;10 year old child

\[
\begin{array}{l}
\text{am bavš -am galaža da am -am ištila} \\
\text{this child -ERG beat(AOR) and this -ERG cry(AOR)}
\end{array}
\]

‘This child beat [him] up, and this one cried.’ (from Imedadze & Tuite (1985: 88))

This is clearly an example of a linguistic situation that can not be accounted for by semantic bootstrapping.

I will present examples from other split ergative languages that show that the linking rules are disrupted without linguistic marking to indicate this disruption.