Iroquoian languages possess two series of pronominal markers for nouns and intransitive verbs. These are the subject/agent markers and the object/patient markers. This paper addresses the question of what determines the choice of pronominal marker on nouns and intransitive verbs in Iroquoian. I show that the pattern of pronominal marking is dependent on telicity or boundedness. I include a discussion on how telicity plays a role in the syntax of Iroquoian languages in light of Ritter & Rosen’s (2001) discussion on the licensing of eventiveness. Specifically, I argue that telicity is encoded by the presence of an object delimiter, thus, accounting for the correlation between telicity and object pronominal marking.

0 Introduction

Iroquoian languages are polysynthetic languages with three series of pronominal markers, which include the subject/agent markers, the object/patient markers and transitive markers. The transitive markers are typically portmanteau morphemes, although they can sometimes be separated into distinct morphemes agreeing with subject and object, respectively. Intransitive verbs and possessed nominals can appear with either of the first two series, depending of various criteria to be spelled out later. The goal of this paper is to determine what characteristic or characteristics determine the distribution of pronominal markers in Iroquoian. I show that only a single characteristic is needed – telicity or boundedness. I also offer a brief syntactic analysis.
describing how telicity or boundedness plays a role in determining the distribution of pronominal marker.

The Iroquoian family is relatively small with only seven living members. It is spoken in southern Ontario, southeastern Quebec, Oklahoma, and New York State. There are also isolated pockets in the eastern United States, most notably Wisconsin and North Carolina. The following partial classification is from Mithun (1999, p. 418). Iroquoian splits into two main branches: Northern Iroquoian and Southern Iroquoian. The only living member of Southern Iroquoian is Cherokee, which we will not discuss here. Northern Iroquoian splits into two sub-branches. The first branch is represented solely by Tuscarora. The second branch, Five Nations Iroquois (or Iroquois Proper), is comprised today of Mohawk, Oneida, Seneca, Cayuga, and Onondaga. Iroquoian also includes several extinct languages such as and Susquehannock (or Conestoga), Huron-Wyandot and Laurentian.

This paper is organized as follows. Section 1 discusses the agreement patterns found in Iroquoian and offers a descriptive generalization that implicates telicity or boundedness as the single determining feature in the pattern of pronominal marking. Section 2 presents a syntactic analysis describing how telicity plays a role in pronominal marking. Finally, section 3 gives a summary of the discussion.

1 Patterns of Pronominal Markers

As mentioned above, there are two series of pronominal markers for intransitive verbs and nouns in Iroquoian: subject/agent (subject) markers and object/patient (object) markers. In transitive predicates, a portmanteau pronominal marker appears on the verb that agrees both with the subject and the object. On intransitive verbs and nouns, either subject or object marker appears, depending on various criteria, which I describe next.

1.1 Choice of Pronominal Agreement

Various analyses have been proposed in the literature to account for the pattern of pronominal markers in Iroquoian languages (Dyck, 1992; Mithun, 1991). I discuss two previous proposals here, starting with eventive predicates and following with stative predicates. Both Dyck and Mithun recognize that agentivity plays a role in determining choice of pronominal agreement in eventive predicates in Iroquoian. They observe that unergative verbs display either subject agreement or object agreement and unaccusative verbs display only object agreement. Example (1) shows how this variation manifests in unergative predicates. The Cayuga data is taken from Dyck (1992), cited in Mithun and Henry (1982) and the Mohawk data is taken from Mithun (1991) and Mithun & Corbett (1999).

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2 Mithun does not use the terms unergative or unaccusative. She refers to unergative verbs as agentive or subject-oriented and to unaccusative verbs as non-agentive or object-oriented. I follow Dyck and use the terms unergative and unaccusative.
(1)  
   a.  a s ę: kę  ≠  [Cayuga]  
      FAC^3  2SBJ  EPEN  see  PUNC  
      “You saw^4 (it).”  
   b.  te was ohtah  ≠  [Cayuga]  
      DUAL  1OBJ  tidy  PRF  
      “I have tidied up.”  
   c.  wak enhó:  ≠  [Mohawk; Mithun, 1999]  
      1OBJ  close  PRF  
      “I have closed.” or “I have closed it.”  
   d.  o-tsi?tsi-a?  wak-iento-on  
      NEUT-flower-NOUN  1OBJ-plant-PRF  
      “I’ve planted flowers.”

In Iroquoian, transitive verbs with a 3rd person singular neuter object act like intransitive verbs with respect to choice of pronominal marker. This is shown in examples (1a, c, d). Observe that examples (1b-d) appear with object marking on the verb and that example (1a) appears with subject marking. This choice is conditioned by aspect as explained in the following paragraph.

There are three aspects in Iroquoian languages (Mithun, 1991). They include the habitual, the perfective (also called punctual) and the perfect (also called stative). The habitual and perfective aspects always co-occur with subject marking in unergative verbs as shown in example (2a, b). The perfect always co-occurs with object marking in unergative verbs as shown in examples (2c).

(2)  
   a.  k ahtatyës  ≠  [Mohawk; Mithun, 1991]  
      1SBJ  go away.HAB  
      "I often go away.”  
   b.  A  k ahtäl:ti?  ≠  
      1SBJ  go away.PRFV  
      "I will go away.”

---

3 FAC = factual; EPEN = epenthetic; PUNC = punctual; SBJ = subject/agent series; DUAL = dualic; OBJ = object/patient series; PRF = perfect, FI = feminine indefinite, SRF = semi-reflexive, P = plural, S = singular, M = masculine, DAT = dative. All glosses are given as found in the original sources, thus inconsistencies in interlinear glosses and the terminology used will arise.

4 Although see is usually not considered agentive, it falls in with the class of agentive verbs. Mithun (1991) discusses the historical development of modern Iroquoian vocabulary. She finds that origins of many lexical items are opaque, although they are resistant to reclassification. For example, “work” in many Iroquoian languages is classified as non-agentive because of the historical derivation of the word, which originally meant something like “be occupied with”. Although, this verb is now agentive, with a meaning close to that of its English counterpart, it is still classified with non-agentive, or unaccusative verbs.

5 Mithun (1991) only glossed the morphemes in the Mohawk examples that were relevant to her discussion.
We now turn our attention to the unaccusative verbs. These verbs always appear with object marking, regardless of aspect. This is shown in example (3).

(3)  
a.  wak-       i:tä:-       s   [Oneida⁶; Michelson & Doxtator, 2002]  
  1OBJ  sleep  HAB  
  “I’m sleeping.”  
  [-telic]

b.  lo-      tá:-       u   
  3OBJ  sleep  STAT (=PERFECT)  
  “He has slept.”  
  [+telic]

c.  uk- i:tä- we?   
  1OBJ  sleep  PUNC (=PERFECTIVE)  
  “I fell asleep.”  
  [-telic]

Recall that transitive predicates with a 3rd person neuter object behave as intransitive predicates. Compare the above examples with a truly transitive predicate (Mohawk; Mithun & Corbett, 1999):

(4)  (Kaspé)  ta-    hshako-    hser-e?   (ne ronón:kwe)  
  Kaspé  CISLOC-3M.SBJ.3P.OBJ-chase-IMPRF (NE men)  
  “Kaspé/he was chasing the men/them.”

We have seen that unergative predicates take subject pronominal markers in the habitual or perfective aspect and object markers in the perfect aspect. Unaccusative predicates, however, always take object pronominal markers. Next, we turn our attention to stative predicates.

Stative predicates appear only in the perfect aspect, but appear with both types of marking. The perfect aspect marker is “syntactically inactive” (Dyck, 1992) because it can appear with derivational morphology after it (such as a causative marker). Aspect markers in eventive predicates cannot with any morphology after them. Furthermore, the type of perfect aspect marker is lexically conditioned with stative predicates, but not with eventive predicates. Because of these differences, stative predicates are often described as having stative aspect, and the word-internal perfect aspect marker is ignored.

The conditioning factor for choice or pronominal marker in stative predicates is as follows. Stage-level predicates (temporary states) appear with object marking (Dyck, 1992):

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⁶ I have not tested if the same pattern for telicity holds true in Oneida as Dyck reports for Cayuga; however, the translations given by Michelson and Doxtator strongly suggest this is the case.
Individual-level predicates (permanent states, kinship relations) appear with subject marking:

(6)  a.  ha- hŋēyes  
       3M.SBJ be.tall  
       “He is tall.”

   b.  te- kai- at- e- hŋote:ʔ  
       DUAL 3P.F.SBJ SRF EPEN be.sister.PRF  
       “They are sisters.”

   c.  k- hŋa:yēs  
       1SBJ tall  
       “I am tall.”

Mithun (1991) attributed the difference between these two groups to affectedness. Affectedness of a subject refers to the degree of physical or psychological impact an action has on an individual. The affected subjects in example (5) appear with object marking, while non-affected subjects in example (6) appear with subject marking. There is a tacit assumption here that people are much more likely to be affected by temporary states than by permanent states. As far as the examples above are concerned, being hungry affects someone more than being tall. If we accept this line of reasoning, then there is a natural correlation between level of affectedness and the stage-versus individual-level property.

In summary, we can divide Iroquoian verbs into two main classes: eventive and stative. Eventive verbs further subdivide into unergative verbs, which take subject pronominal markers in the habitual and perfective aspects and object pronominal markers in the perfect aspect. Unaccusative verbs always take object pronominal markers. Stative predicates also subdivide into two classes. Stage-level predicates take object pronominal markers and individual-level predicates take subject pronominal markers. We now leave the discussion of verbs to consider the pattern of pronominal markers in possessed nouns.

The discussion on possessed nominals centers around the alienable/inalienable distinction. Inalienably possessed nominals appear with a subject pronominal marker on the noun:

(7)  k nęts aʔgeh  
       1SBJ arm LOC  
       “on my arm”

Note that inalienably possessed nouns must appear with locative affix, except in Tuscarora.
Alienably possessed nominals, however, appear with an object pronominal marker on the noun:

(8) ak nɔhs aʔ

     OBJ house NSF

“my house”

Alexiadou (1999) notes that cross-linguistically, inalienably possessed nominals appear with object marking and alienably possessed nominals appear with subject marking. This is contrary to the Iroquoian facts. I offer no account for this paradox at this time. The pattern of pronominal agreement markers for both nouns and verbs is summarized in the chart in Table I.

Table 1 Pattern of Pronominal Marking in Iroquoian Nouns and Verbs

<table>
<thead>
<tr>
<th>intransitive verbs</th>
<th>eventive</th>
<th>unergative</th>
<th>perf</th>
<th>subj</th>
<th>object</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>stative</td>
<td>unaccusative</td>
<td>perfect</td>
<td>obj</td>
<td>non-affected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>stage-level</td>
<td>object</td>
<td>subj</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>individual-level</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

alienably possessed nouns

| object |

inalienably possessed nouns

| subj |

1.2 Descriptive Generalization

Table I contains a wide variety of information. The question I wish to investigate is weather there is a single characteristic or feature that determines the distribution of pronominal markers in Iroquoian. I will suggest that telicity or boundedness is this feature, and that it determines the pattern of pronominal marking. I begin the

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8 NSF = noun suffix former. If there is otherwise no suffix on the noun, a noun suffix former must appear.
discussion with eventive verbs, followed by stative verbs and end with possessed nominals.

We begin this discussion with unergative eventive predicates. Note that an unergative verb can appear either with subject marking or object marking depending on its aspectual properties. Dyck (1992) noted for Cayuga that if a verb appears with habitual or perfective aspectual marking, it must receive an atelic reading. In the perfect aspect, it may have either a telic or atelic reading, depending on tense. Specifically, a past tense form implies a telic reading, and a present tense form implies an atelic reading. Example (2) above shows that Mohawk has the same properties, and Michelson & Doxtator (2002) report the same for Oneida. Indeed, this pattern holds across Iroquoian generally.

Unaccusative verbs, however, appear with object marking, regardless of aspect. Also, Dyck (1992) noted for Cayuga that the unaccusative verbs are always telic. I have not investigated this claim for other Iroquoian languages, so I make the dangerous assumption that telicity holds generally across unaccusative verbs. If we allow this assumption, we observe, then, that all unaccusative verbs are telic and all exhibit object pronominal marking.

Having dealt with unergative and unaccusative verbs in Iroquoian, I now turn to stative verbs. Recall that stage-level or affected predicates appear with object marking. These predicates are temporary or prone to change. In other words, they are telic (or bounded). For example, being hungry has a natural end-point, namely satiety or death. In other words, it is the nature of a stage-level predicate that it must contain some natural end-point to meet the condition of being transitory or temporary. Individual-level or non-affected predicates, on the other hand, appear with subject marking. These predicates are permanent states, hence not susceptible to change. In this sense, they are atelic or unbounded. For example, being tall has no natural end-point since it is considered an inherent property of the individual it describes.

In order to capture the descriptive generalization concerning the pattern of pronominal markers in Iroquoian, we must loosen our definition of telicity. Telicity is traditionally thought of as the presence of a definite endpoint to an event. Here, however, we can think of telicity as having a potential for change of state or potential end-point, and atelicity as the inability or lack of opportunity to change state or have an end-point. Alternatively, we may think of the relevant property as boundedness versus unboundedness. Thus, subject pronominal markers appear on unbounded predicates and object pronominal markers appear on bounded markers.

We now turn our attention to possessed nominals. In the last section, it was determined that the pattern of pronominal marking on nominals is determined by whether it is alienably or inalienably possessed. I propose to extend the definition of telicity or boundedness to include the type of possessor-possessee relationship. Suppose, then, that inalienable possession is unbounded atelic. For example, someone’s arm is their arm forever. In other words, the possessor-possessee relationship here is permanent, with no logical or even possible end-point. Alienable possession, conversely, is bounded or telic. For example, someone’s book is only

9 Already there is a potential problem here. Arad (1998) points out that, although all telic intransitives are unaccusative, the converse is not necessarily true. That is not all unaccusatives are necessarily telic.
there is a potentially finite period of time. In other words, the possessor-possessee relationship has the potential for an end-point. An atelic relationship in possessed nominals, then, gives rise to subject pronominal marking, and a telic relationship in possessed nominals gives rise to object pronominal marking.

In this section we have looked at eventive verbs, stative verbs and possessed nominals. In all three cases we have seen that an atelic or unbounded relationship between the subject and the predicate implies the presence of subject pronominal marking on the predicate, and that a telic or bounded relationship between the subject and the predicate implies the presence of object marking on the predicate. In the next section, I discuss some syntactic motivation as to why this pattern of agreement might hold.

2 Towards an Analysis

The descriptive generalization gleaned at the end of section 1 is that choice of pronominal marker in Iroquoian reduces to the telicity or boundedness of the predicate:

\[
\begin{align*}
\text{atelicity} & \rightarrow \text{subject marking} \\
\text{telicity} & \rightarrow \text{object marking}
\end{align*}
\]

Cross-linguistically, there is a link between telicity and accusative Case (see Ramchand, 1997; Kiparsky, 1998; and Kratzer, 2002 for discussion). In this section, I discuss some syntactic evidence as to why this might be the case, at least for Iroquoian, based on work by Ritter & Rosen (2001) on the syntactic encoding of eventiveness. I will suggest that Iroquoian languages, like English, encode eventiveness with the delimiter of the event. Before we discuss this possibility, it is necessary to lay out some fundamental aspects of the syntax of Iroquoian languages.

Based on the morphological structure of verbs in Cayuga (Dyck, 1992), Oneida (Michelson & Doxtator, 2002) and Tuscarora (Williams, 1976), I assume the order for morphemes in Iroquoian verbs as outlined in Table 2. This order remains quite constant across Iroquoian.

**Table 2 Order of Verbal Morphemes in Iroquoian**

<table>
<thead>
<tr>
<th>prepronominal prefixes (mood)</th>
<th>pronominal prefixes</th>
<th>verb base</th>
<th>derivational affixes (inchoative causative, etc)</th>
<th>aspect</th>
</tr>
</thead>
</table>

\(^{10}\) See Ogawa (2001) for an opposing point of view, where it is proposed that alienably possessed nouns are individual-level predicates and inalienably possessed nouns are stage-level predicates.
Following Baker (1996), with modifications, I assume the structure in example (10) for the Iroquoian languages discussed here. The differences between the structure presented here and the structure presented in Baker (1996) is the inclusion here of a vP and a MoodP. Although it is not crucial to the analysis presented here, most contemporary theories of generative syntax assume a vP. Also, Baker pointed out that the presence of prepronominal prefixes were difficult to account for without some higher projection. Many of these prefixes have mood or attitude-like qualities, which makes MoodP the most appropriate choice for a functional projection. I follow Jelinek (1984) and assume that arguments in Iroquoian are null pronominal elements (pro). I suggest, however, that D° is overt (Agr in the following example) and contains the pronominal marking as shown in example (10).

(10) \[
\begin{array}{c}
\text{DP} \\
\text{D°} \\
\text{Agr} \\
\text{pro} \\
\text{NP}
\end{array}
\]

Although Baker (1996) assumes that agreement features are merged in a head-adjoined position, I assume that the agreement features are overt D° elements that raise and adjoin to the head of IP as shown in example (11). Finally, I assume overt head movement of the verb to the head of AspP.

(11) \[
\begin{array}{c}
\text{MoodP} \\
\text{Mood°} \\
\text{IP} \\
\text{I°} \\
\text{AspP} \\
\text{D°} \\
\text{I°} \\
\text{Asp°} \\
\text{vP} \\
\text{V-v-Asp} \\
\text{DP} \\
\text{v'} \\
\text{t_v'} \\
\text{t_v°} \\
\text{VP}
\end{array}
\]

Ritter & Rosen (2001) proposed that there are two kinds of languages: I-languages, in which eventiveness is encoded by initiator (grammatical subject), and D-languages, in which eventiveness encoded by delimiter (grammatical object). Looking at the languages under discussion here, we see that telicity, or delimitation of an event, always co-occurs with an object marker, which is normally reserved for the grammatical object. Thus, eventiveness in Iroquoian is licensed by a delimiter, as shown by the obligatory presence of an object marker. Following this line of thought,
we conclude that Iroquoian languages are D-languages. In other words, in order to delimit an event in Iroquoian, an object marker must be present on the verb. The following examples illustrate subject pronominal marking and object pronominal marking on a (derived) unergative.\footnote{I use the term derived unergative because /yåʔthw/ ‘to plant’ is, strictly speaking, transitive. Recall that when the direct object is 3rd person singular neuter, the verb behaves as if it were intransitive.} The pro-NP raises to the appropriate Case checking position and the overt D° head raises to the IP domain. Thus, the overt D° is akin to Romance pronominal clitics.

(12) a. k yåʔtho s
    1SBJ plant HAB
    “I am planting (it).”

b. \[
\begin{array}{c}
\text{MoodP} \\
\text{Mood} \downarrow \\
\text{IP} \\
\text{pro}_i \\
\text{I'} \\
\langle \text{AspP} \\
\text{I°} \\
\text{Asp}^o \\
\text{vP} \\
\text{DP} \\
\text{v'} \\
\text{D°} \\
\text{NP} \\
\text{t_v°} \\
\text{VP} \\
\text{t_j} \\
\text{t_i} \\
\text{t_v°}
\end{array}
\]

In example (12), the DP subject has an overt D° and an empty pro NP. Pro raises to the specifier of IP to check nominative Case. Nominative Case assignment is shown by the dashed line in example (12). I assume that D° is clitic-like in nature and raises to the IP domain, as in Romance (Kayne, 1975). Since no accusative Case checking took place in (12), there is no delimitation and the event is atelic. Consider now an unergative in the perfect aspect, which exhibits object pronominal marking.

(13) a. wak yåʔth u
    1OBJ plant PRF
    “I have planted (it).”\footnote{This sentence also means, “It (ex. a monster) has planted me.”}
Example (13) shows an unergative verb with object pronominal marking. Recall that we are trying to find a link between the aspectual feature telicity and accusative Case. With this in mind, I propose that accusative Case can be checked in the specifier of AspP, telicity is plausibly licensed. In (13), the empty NP pro raises to the specifier of AspP and checks accusative Case with the light \( v^o \), which has raised to the head of AspP. This is shown by the dashed line in example (13). As a result of \( v^o \) discharging its accusative Case to the specifier of AspP, an aspectual telic reading results. The D° raises to the IP domain as in example (11).

In this section, I have proposed that the link between accusative Case and telicity in Iroquoian languages is a result of the syntactic properties of these languages. Following Ritter & Rosen (2001), I assume that Iroquoian languages are D-languages. That is, eventiveness is encoded by an object delimiter. Thus, in order for a sentence to receive a telic reading, object pronominal marking must appear on the verb. In the case of unergatives, accusative Case checking is assumed to take place in the specifier of AspP, which is aided by the fact that the light \( v^o \), the head responsible for accusative Case checking, has also raised to the head of AspP. Once the pronominal subject pro has raised to the specifier of AspP, accusative Case is assigned giving rise to object pronominal marking on the verb and a telic reading on the sentence.

### 3 Summary

In this paper, we have seen a variety of agreement patterns in Iroquoian languages with respect to pronominal marking. I have tried to conflate these environments to a single factor, namely, telicity or boundedness. Specifically, we looked at eventive predicates, which are divided into unergative and unaccusative verbs. The unergative
verbs take subject agreement in the habitual or perfective aspect, which are atelic, and object agreement in the perfect aspect, which is telic. The unaccusative verbs always appear with object pronominal markers. The stative predicates are divided into stage-level predicates, which take object agreement and individual-level predicates which take subject agreement. At this point, I suggested that the definition of telicity or boundedness can be massaged to account for this difference. Stage-level predicates are temporary states, thus they are inherently prone to some natural end-point. In other words, they are telic, which I have suggested correlates to object agreement. Individual-level predicates are permanent and incapable of any end-point. In this sense, they are atelic or unbounded. Again, we have seen that atelicity corresponds to subject agreement. Finally, we looked at nouns, where we saw that inalienably possessed nominals appear with subject marking and alienably possessed nominals appear with object marking. I suggested that the relationship between possessor and possessee with respect to the alienable versus inalienable contrast can also be understood in terms of telicity or boundedness. The relationship between the possessor and possessee in inalienably possessed nominals is permanent, with no possible end-point. In this sense, the relationship is atelic. Similarly, for alienably possessed nominals, the relationship between the possessor and possessee is subject to change, hence, there is a possible end-point. In this sense, the relationship with alienably possessed nominals is telic. Thus, in all cases for both verbs and nouns, telicity or boundedness requires the presence of object pronominal marking.

In section two, I suggested that correlation between telicity and object pronominal marking is a result of how eventiveness is encoded in Iroquoian languages. Following Ritter & Rosen (2001), I assume Iroquoian languages are D-languages. This means that eventiveness is triggered by the presence of an object delimiter. Assuming that delimiting an event subsumes aspectual telicity or boundedness, we expect to find object pronominal marking whenever telicity or boundedness holds in a predicate. I propose that this is handled by the Case checking mechanism. I proposed that Iroquoian has null pronominal arguments with overt D°s. The overt D° material raises to the IP domain and the NP pro raises to a Case checking position. I also assumed that the specifier of AspP is an accusative Case checking position. In the case of unergatives in the perfect aspect, pro raises to the specifier of AspP to check accusative Case. As a result of checking accusative Case, object pronominal marking appears on the verb and the sentence has a telic reading.

References


