Gender Mismatches and Ellipsis in Cayuga

Michael Barrie

Sogang Univesity
mikebarrie@sogang.ac.kr

This paper discusses a kind of ellipsis in Cayuga (Northern Iroquoian) known as stripping. We show that while person, number and gender feature mismatches are generally tolerated in this construction, gender mismatches are not tolerated with most predicate nouns referring to humans. Merchant (2014) discusses gender mismatches under ellipsis in Greek human nominals and proposes that certain human nouns are lexically encoded to presuppose the gender of their respective referents. We show that Merchant's general proposal can be accommodated to the Cayuga facts, the specifics of his proposal cannot be carried over. We reject the lexicalist stance in Merchant's proposal and instead propose that human noun roots in Cayuga carry an interpretable humanness feature [H], which is obligatorily valued for gender. It is this interpretable [H] feature that gives rise to the lack of tolerance for gender mismatches on human predicate nouns.

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1. Introduction

Many if not most languages allow for ellipsis in situations where identical material exists in the same utterance.

(1) Mary will eat an apple and so will John ~~eat an apple~~.

It is possible, however, that complete identity is not always required to license ellipsis. The kind of mismatch and ellipsis I am referring to here can be seen in the following English example with gender mismatch, where the judgements shown are typical of many English speakers.

(2) a. % John is a waiter, and so is Mary.
b. * Mary is a waitress, and so is John.

English has very few word pairs that distinguish gender, and those that do exist are starting to be replaced by gender-neutral forms. Nevertheless, the words *waiter* and *waitress* are still familiar enough to illustrate the point. For some speakers, the word *waiter* must have a male referent; however, for others it is gender-neutral and can take a male or a female referent.

Interestingly, however, number and person mismatches are permitted by all speakers.

(3) a. John is a waiter, and so are Bill and Fred.
b. * Bill and Fred are a waiter. (cf. Bill and Fred are waiters.)
c. I am a waiter, but not Bill.
d. * Bill am a waiter. (cf. Bill is a waiter.)

Observe that the non-elided form must agree in number. These observations suggest that gender and number in English are treated differently by the morpho-syntactic mechanisms that derive these structures. Roughly speaking, the words *waitress* and (for some speakers) *waiter* seem to be encoded for feminine and masculine respectively in such a way that the gender feature cannot be overridden or removed. These two words, on the

other hand, do not seem to be encoded for number the same way. That is, number can be overridden in the ellipsis example in (3). Although the English example chosen illustrates the kinds of facts I will be examining here, English is not really the ideal language to explore this topic since gender is not generally morphologically marked in English. Nevertheless, the core of the explanation of this observation resides in the notion that number marking is traditionally considered inflectional in English, while gender marking, to the extent that it can be found, is considered derivational. Although the distinction between inflectional and derivational morphology is quite blurry, leading some researchers to the conclusion that the distinction is not real, I will nevertheless examine ellipsis in a language in which person, number and gender are all productive and are uncontroversially inflectional.

In this paper I examine ellipsis in Cayuga, an endangered Iroquoian language spoken in central North America on the border between Canada and the US. Cayuga is a polysynthetic language (Baker, 1996, Hale, 1983), having subject and object agreement for person, number, and (in the 3rd person) gender, the so-called φ-features. Unlike English, gender marking is obligatory in the 3rd person, as person and number are for all persons. Thus, this language affords an excellent testing ground for how these features behave under ellipsis. The particular form of ellipsis under investigation here is subject stripping, as Cayuga does not have VP ellipsis.

I will show that, while person and number mismatches are tolerated under ellipsis for all predicates gender mismatches are not permitted with most human predicate nouns. Gender mismatches are permitted with other predicates, however. I will argue that such human nouns encode an interpretable gender feature, while all other φ-features are uninterpretable and are deleted at the LF interface. I will show that ellipsis is dependent on LF identity. Given that φ-features are uninterpretable and deleted, mismatches are expected to be possible, as LF cannot detect them. However, if a mismatch for interpretable gender features on human nouns survives at LF, ellipsis will not be licensed. Thus, the core proposal here is that human nouns in Cayuga possess an interpretable gender feature, which interferes with ellipsis.

The remainder of this paper is structured as follows. Section 2 presents

the background, which includes relevant grammatical information about Cayuga as well as the theoretical background for this investigation, which includes a brief discussion of Merchant's (2014) analysis of Greek. Section 3 illustrates the properties of ellipsis in Cayuga (illustrated with subject stripping). Section 4 presents the core proposal and the analysis. Section 5 is a brief conclusion.

2. Background

This section presents the relevant background for this investigation. I begin with some brief remarks on the grammar of Cayuga and then continue with Merchant's (2014) analysis of ellipsis in Greek. I end with a discussion on the derivation of different kinds of ellipsis across language, concentrating on the proposals of Merchant. The purpose of this discussion is to establish a theoretical framework in which to analyze the Cayuga facts.

2.1 Background on Cayuga

Cayuga is a member of the Northern Iroquoian of the Iroquoian family, spoken in central North America on the border between Canada and the US. It is a discourse configurational (Hale, 1983) and a polysynthetic language (Baker, 1996) with a rich agreement paradigm. All extant Northern Iroquoian languages are highly endangered, although Mohawk (a closely related language) has had some success in revitalization, and Cayuga has started a revitalization program.

Cayuga is polysynthetic in that it exhibits noun incorporation and highly complex morphology and full subject and object agreement. It is discourse configurational in that it exhibits free word order, discontinuous constituency, and massive pro-drop. Specifically for the discussion here the following points are important. Agreement is found for person, number, and gender. Gender agreement is found only in the 3rd person, however (Deer, 2011, Lounsbury, 1949). Consider the partial paradigm in (4). Note that while separate subject and object agreement morphemes can sometimes be identified, there is a great deal of portmanteau morphology in the agreement paradigm. Also, only animate arguments trigger agreement, so transitive

verbs with an inanimate argument inflect as intransitive verbs (Koenig & Michelson, 2015), as shown in the first example below.

(4) a. hagę́haʔ
ha- kę -haʔ
3.SG.M.AG- see -HAB
'He sees it.'

b. hákgę́haʔ
ha- ak- kę -haʔ
3.SG.M.AG- 1.SG.PAT- see -HAB
'He sees me.'

c. gǫgę́haʔ
kǫ- kę -haʔ
1.SG.AG:2.SG.PAT- see -HAB
'I see you.'

d. hesgę́haʔ
he- s- kę- haʔ
3.SG.M.PAT- 2.SG- see -HAB
'You see him.'

Next, the order of the morphemes in the verbal complex can be described in the following template, which I capture in the clause structure shown below, following the Mirror Hypothesis (Baker, 1985). Only the underlined elements are obligatory in the verbal complex.[1]

(5) a. Mood – Agr – N – V – Caus/Inch – <u>Aspect</u>
b. CP > MoodP > TP > AspP > *v*P > VP

I assume that causative/inchoative morphology is encoded on *v*P or on a

[1] Note there is additional morphology that can appear in the verbal complex; however, a complete discussion of the verbal complex in Cayuga would take us too far afield. See Froman *et al*. (2002) for a general discussion of Cayuga grammar. See also Lounsbury (1949) for an early and in depth discussion of Iroquoian morphology.

similar projection in the vicinity of *v*P. I also assume agreement appears as a unit on T, despite the not above that the agreement can often be decomposed into distinct morphemes. Nothing crucial in the forthcoming analysis hinges on these two choices. I am simply assuming them for ease of exposition. I also assume that the verb undergoes head movement to AspP, giving rise to the observed order of morphemes. I assume the higher morphology attaches to the verbal complex by some post-syntactic prefixation mechanism (Harley, 2011, 2013, Julien, 2002). Note that the verbal complex cannot be split up or partially deleted. Thus, there are no VP deletion phenomena as this would leave the verbal prefixes without a host.

Nouns in Cayuga typically have a much simpler morphological structure. Most nouns consist of a root, a nominal prefix, and a nominal suffix. The suffix, often called a noun stem former (NSF) in Iroquoianist literature, is always *-aˀ* for inanimate nouns in Cayuga. The nominal prefix (NPREF) is *ga-*, *o-*, or *a-*, the choice of which is unpredictable. Here is an example.

(6) ganǫ́hsaˀ
ga- nǫhs -aˀ
NPREF- house -NSF
'house'

For most human nouns the nominal prefix is identical to the pronominal prefixes described for the verbs above. Most human nouns appear with a single agreement marker identifying the referent. Kinship nouns usually take transitive morphology identifying the two individuals in the kinship relationship (see Koenig & Michelson, 2010 for an in depth discussion of kinship nouns in Oneida, a closely related language). The noun stem former varies unpredictably. Here are some examples.

(7) a. eksa:ˀah
e- ksaˀ -ah
3.SG.F.AG- child -NSF
'girl'

b. heʔgę́:ʔęh
he-ʔkęʔę-h
3.SG.M.AG:1.SG.PAT-younger.sibling-NSF
'my younger brother'

Having introduced the basic components of Cayuga grammar, I move on to a discussion of gender mismatch in Greek.

2.2 Gender Mismatch in Greek

Merchant (2014) presents an empirically rich discussion of the gender mismatch possibilities in Greek. I restrict the discussion to predicate nominals here as nominal arguments with ellipsis are difficult to construct in Cayuga. Consider the following examples. Example (8) illustrates a class of nouns in which no gender mismatch is permitted at all. Example (9) illustrates a class of nouns in which gender mismatch is permitted only if the overt noun is masculine (as for some English speakers who find example (2)a above grammatical). Finally, example (10) illustrates a class of nouns that allow gender mismatch in either direction. The results are summarized below.

(8) a. * O Petros ine kalos adherfos, ala i Maria ine mia kakia
[Merchant, 2014, ex (9)]
the Petros is good.MASC brother but the Maria is a.FEM bad.FEM
('Petros is a good brother, but Maria is a bad one.')

b. * I Maria ine kali adherfi, ala o Petros ine enas kakos.
the Maria is good.FEM sister.FEM but the Petros is a.MASC bad.MASC
('Maria is a good sister, but Petros is a bad one.')

(9) a. O Petros ine kalos dhaskalos, ala i Maria ine mia kakia
the Petros is good.MASC teacher but the Maria is a.FEM bad.FEM
('Petros is a good teacher, but Maria is a bad one.')

b. * I Maria ine kali dhaskala, ala o Petros ine enos kakos
the Maria is good.FEM teacher but the Petros is a.MASC bad.MASC
('Maria is a good teacher, but Petros is a bad one.')

(10) a. O Petros ine kalos jatros, ala I Maria ine mia kakia.
the Petros is good.MASC doctor but the Maria is a.FEM bad.FEM
('Petros is a good doctor, but Maria is a bad one.')
b. I Maria ine kali jatros, ala o Petros ine enas kakos.
the Maria is good.FEM doctor but the Petros is a.MASC bad.MASC
('Maria is a good doctor, but Petros is a bad one.')

Merchant summarizes these effects as follows:

Class 1	no gender mismatch
Class 2	m → f mismatch allowed; f → m mismatch prohibited
Class 3	both m → f and f → m mismatches allowed

2.3 Merchant's Analysis: The Derivation of Ellipsis

To account for the pattern in Greek ellipsis above Merchant avails himself of the following three ingredients. First, Merchant proposes that certain human nouns have gender presuppositions. Since these presuppositions are lexically encoded they are subject to inter-speaker variation. For example, the English word *waitress* presupposes a female referent, while *waiter* presupposes a male referent for some speakers, but makes no presupposition for other speakers. Second, Merchant proposes that a gender feature obligatorily merges with all human nouns and that this feature is likely housed on *n*. Finally, Merchant proposes that ellipsis can have more than one possible source. In particular, it can arise either through PF deletion or through a null pronoun, whose identity is determined at LF.

We begin with the gender presuppositions. Merchant proposes that the human nouns above, while clearly morphologically related, are individually stored in the mental lexicon with the following presuppositions (Merchant, 2014: ex (39-41)). Again, Merchant states that since individual lexical items can vary from speaker to speaker, there will be some individual variation in which nouns have gender presuppositions.

(11) a. [[adherfos]] = λx : x is male [sibling(x)]
b. [[adherfi] = λx : x is female [sibling(x)]

(12) a. [[dhaskalos]] = λx [teacher(x)]
b. [[dhaskala]] = λx : x is female [teacher(x)]

(13) [[jatros]] = λx [doctor(x)]

The forms for 'sibling' presuppose the gender both for male and for female. The form *dhaskala*, ('teacher') presupposes that the gender of its referent is female; however, the form *dhaskalos* carries no gender presupposition. In addition to these lexical presuppositions, Merchant, following much work in the extended nominal projection (Alexiadou, Haegeman & Stavrou, 2007, Picallo, 1991, Ritter, 1993), assumes that gender as an inflectional property is encoded on *n*P and is present on all human nouns (although he leaves open the possibility that it appears on all nouns, not just those relating to humans).

As introduced above in the outline of Merchant's analysis, two classes of derivations for ellipsis have been advanced in the literature. The first one argues that the ellipsis site is a phonologically null *pro*, which copies the relevant information at LF to get the correct interpretation. Let's call this the LF-fill in approach. The other class of derivations argues that the identical material is deleted at PF (but remains present at LF for interpretation) giving rise to ellipsis. Let's call this the PF-deletion approach. The difference between these two approaches can be teased apart by assuming that uninterpretable features are deleted at Spell-Out. The PF-deletion approach requires identity at PF.[2] The LF-fill in approach can give rise only to resumed material with identical material at LF. However, since uninterpretable features are stripped away at LF, mismatches in uninterpretable features are tolerated with the LF-fill in approach.

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[2] It has been suggested that it is only identity at PF that is required for VP-ellipsis that arises by PF-deletion. The following examples suggest that LF identity is not required. See Potsdam (1997) for a discussion.

i. John has put the apple on the table…and so will Mary ~~put the apple on the table~~.
ii. * John has eaten the apple…and so will Mary ~~eat the apple~~.

Observe that the non-finite form of the verb *put* and the past participle are identical. They are both *put*. For the verb eat, however, the past participle is eaten. Thus, the PF-identical forms for *put* license VP-ellipsis, while the forms *eat-eaten* differ at PF, thereby

Merchant, in fact, proposed that both kinds of derivations are required to account for the Greek data. Specifically, he argues that, for predicate nominal constructions, PF deletion of the *n*P is available only if gender (and all other features) match. In the event of a gender mismatch a null pronoun must be used that is filled in, as long as the source for the elided *n*P itself contains no conflicting gender presupposition.

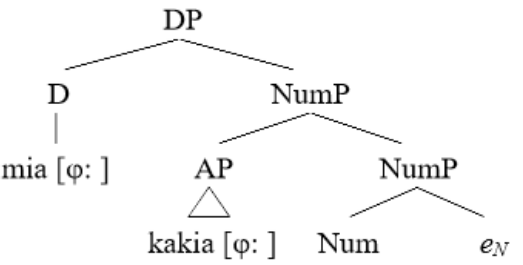
Consider the following data, repeated from (9) above.

(14) a. O Petros ine kalos dhaskalos, ala i Maria ine mia kakia
the Petros is good.MASC teacher but the Maria is a.FEM bad.FEM
('Petros is a good teacher, but Maria is a bad one.')

b. * I Maria ine kali dhaskala, ala o Petros ine enos kakos
the Maria is good.FEM teacher but the Petros is a.MASC bad.MASC
('Maria is a good teacher, but Petros is a bad one.')

Merchant proposes that the PF deletion approach will not work here because of the differences in the feature specifications. Instead, he argues that a null proform is found in these examples (similar to English *one* in the expression *a tall student and a short one*). Crucially, the null proform, e_N, can be the complement of Num only. That is, it must resume P. Here is the structure Merchant proposes for (14)a.

(15) Maria is



prohibiting VP-ellipsis. Of course, the LF forms are crucially different in both cases, further favouring a PF-deletion approach. These facts suggest that a uniform, cross-linguistic analysis of ellipsis is not forthcoming, but the consequences are well beyond the scope of this paper. See Merchant (2001) for an extensive discussion on ellipsis.

A key component of Merchant's analysis is the following. The null proform resumes the *n*P, which includes the gender feature, which would normally value the φ-features on the adjective and on D. Instead, these unvalued φ-features agree upwards with *Maria* (Baker, 2008). The contrast in (14) is derived as follows. The null proform is resumed by the closest appropriate *n*P. In (14)a. the closest *n*P is dhaskalos, which means *teacher* with no gender presupposition. The lack of gender presupposition renders it consistent with a female antecedent. In (14)b., however, the closest nP is dhaskala, which means teacher with a female referent presupposed. Thus, it is not consistent with the null proform in (14)b., where the antecedent is male.

There is much more to Merchant's analysis; however, I have covered only those parts which are relevant to the analysis of Cayuga stripping. This concludes the background discussion, and I turn now to the empirical core of this study, subject stripping in Cayuga.

3. Subject Stripping in Cayuga

Recall that Cayuga has obligatory person, number, and gender agreement on verbs and most predicate nouns, as shown in the following examples.

(16) a. John aha:k neˀ swahyo:waˀ
John a-ha-k-Ø neˀ swahyo:waˀ
John FACT-3.SG.M.AG-eat-PUNC NE apple
'John ate an apple.'

b. age:k neˀ swahyo:waˀ
a-k-e-k-Ø neˀ swahyo:waˀ
FACT-1.SG.AG-EPEN-eat-PUNC NE apple
'I ate an apple.'

Again, as mentioned, Cayuga does not have VP ellipsis, as the verbal complex includes morphology higher in the tree that cannot be stranded by VP (or *v*P) deletion. When asked to translate examples of VP ellipsis (shown in the idiomatic translations in the examples below) Cayuga speakers produce the following forms with the full verbal complex intact (although

the object has been dropped).

(17) John aha:k neˀ swahyo:waˀ neˀ hęne: aˀe:k Mary
John a-ha-k-Ø neˀ swahyo:waˀ neˀ hęne: aˀ-e-k-Ø Mary
John FACT-3.SG.M.AG-eat-PUNC NE apple and FACT-3.SG.F.AG-eat-PUNC Mary
'John ate an apple, and so did Mary.'

(18) John aha:k neˀ swahyo:waˀ neˀ hęn i: age:k
John a-ha-k-Ø neˀ swahyo:waˀ neˀ hęne: i: a-k-e-k-Ø
John FACT-3.SG.M.AG-eat-PUNC NE apple and I FACT-1.SG.AG-EPEN-eat-PUNC
'John ate an apple, and so did I.'

Cayuga does, however, allow subject stripping. The Cayuga speakers I have consulted tell me that they are slightly less natural than the forms in (17) and (18) above, though they are possible. It remains to be investigated the contexts that allow subject stripping. The following examples show that lexical verbs permit person, number and gender mismatches with subject stripping.

(19) a. John aha:k neˀ swahyo:waˀ, neˀ hęˀne:ˀ Bill/Mary/i:
John he.ate apple and also Bill/Mary/I/we
'John ate an apple, and so did Bill/Mary/I/we.'

b. agni:k neˀ swahyo:waˀ, neˀ hęˀne:ˀ Bill
we(DU.INCL).ate apple and also Bill
'We two ate an apple, and so did Bill.'

To summarize, Cayuga does not allow VP ellipsis, but does allow subject stripping. With lexical verbs, person and gender mismatches are permitted with subject stripping. The next section looks at subject stripping with predicate nouns.

3.1 Gender Mismatch on Human Nouns

As with lexical verbs, nouns also exhibit agreement. Agreement, however, is restricted to nouns that refer to humans. Consider the following examples.

(20) a. John haksá:ʔah
John ha- ksaʔ -ah
John 3.SG.M.AG- child -NSF
‘John is a boy.’

b. Mary eksá:ʔah
Mary e- ksaʔ -ah
Mary 3.SG.F.AG- child -NSF
‘Mary is a girl.’

Kinship nouns display transitive agreement, in which the agent or subject agreement agrees with the referent of the noun and the patient or object agreement agrees with the individual whose relationship is being expressed to the referent of the noun (expressed as a possessor in English).

(21) heʔgę́:ʔęh
he- ʔkęʔę -h
3.SG.M.AG:1.SG.PAT- younger.sibling -NSF
‘my younger brother’

Unlike the verbal examples we saw above human nouns exhibiting person and gender agreement allow person mismatch, but not gender mismatch. Consider the following examples.

(22) a. John neʔ heʔgę́:ʔęh, neʔ hęʔne:ʔ Bill
John neʔ he-ʔkęʔę-h, neʔ hęʔne:ʔ Bill
John NE I:him-younger.sibling-NSF and also Bill
‘John is my younger brother, and so is Bill.’

b. * John neʔ heʔgę́:ʔęh, neʔ hęʔne:ʔ Mary
John neʔ he-ʔkęʔę-h, neʔ hęʔne:ʔ Mary
John ne I:him-younger.sibling-NSF and also Mary
(‘John is my younger brother/sibling, and so is Mary.’)

c. John neˀ heˀgéˑˀęh, neˀ hęˀneːˀ iːs
John neˀ he-ˀgęˀę-h, neˀ hęˀneːˀ iːs
John ne I:him-younger.sibling-NSF and also you
'John is my younger brother, and so are you.'
(addressee must be male)

(23) John haksáːˀah, neˀ hęˀneːˀ Bill/*Mary/i:
John ha-ksaˀ-ah, neˀ hęˀneːˀ Bill/*Mary/i:
John 3.SG.M.AG-child-NSF, and also Bill/*Mary/I/we
'John is a child, and so is Bill/*is Mary/am I/are we.'
(speaker must be male)

(24)a. * John hagę́hjih, neˀ hę́neːˀ Mary
John ha-kęhji-h, neˀ hę́neːˀ Mary
John 3.SG.M.AG-elder-NSF and also Mary
('John is an elder, and so is Mary.')

b. * Mary egę́hjih, neˀ hę́ˀneːˀ John
Mary e-kęhji-h neˀ hę́ˀneːˀ John
Mary 3.SG.F.AG-elder-NSF and also John
('Mary is an elder, and so is John.')

The data above show that human nouns do not allow gender mismatch under ellipsis, but do allow person and number mismatch. Note that the unacceptable sentences above are rendered fine if the noun in question is resumed with the appropriate gender marking. Consider the following example.

(25) John hagę́hjih, neˀ hę́neːˀ Mary egę́hjih
John ha-kęhji-h, neˀ hę́neːˀ Mary e-kęhji-h
John 3.SG.M.AG-elder-NS and also Mary 3.SG.F.AG-elder-NS
'John is an elder, and so is Mary.'

Consider now the following data. Observe that there are some human nouns that do allow gender mismatches. These nouns are equivalent to the third class of nouns in Greek that Merchant discussed. Such nouns are traditionally referred to as epicene nouns and are invariant for gender in

Cayuga.

(26) a. Johnny owi:ya:ʔah, neʔ hę́ne:ʔ Billy
Johnny o-wiya-aʔ-ah neʔ hęneʔ Billy
Johnny NPREF-baby-NSF-DIM and also Billy
'Johnny is a baby, and so is Billy.'

b. Johnny owi:ya:ʔah, neʔ hę́ne:ʔ Rosie
Johnny o-wiya-aʔ-ah neʔ hęneʔ Rosie
Johnny NPREF-baby-NSF-DIM and also Rosie
'Johnny is a baby, and so is Rosie.'

Although the prefix on the human nouns in (20) to (25) above refers to the referent, thus indicating the gender (as well as the person and number) of the referent, the prefix in the epicene nouns in (26) is the generic nominal prefix as discussed in section 2. Thus, there is no agreement with the subject as in the other examples. Note crucially that a gender mismatch is permitted in example (26), unlike the other examples shown above.

3.2 Summary

I summarize here the main points of this section. Gender, number, and person mismatches are permitted on verbs as shown by subject stripping. Gender mismatches are not permitted on kinship nouns and some human nouns, although person and number mismatches are possible. Finally, gender mismatches are permitted on a small set of human nouns, namely epicene nouns. The next section analyzes these results, presenting a mechanism for subject stripping.

4. Discussion

This section presents an analysis for subject stripping in Cayuga, taking into account the gender mismatch possibilities with certain predicate human nouns, namely that person and number mismatches are permitted, but gender mismatches are not. First, we discuss Merchant's proposal for the Greek data presented above, pointing out some problems with extending his

proposal to Cayuga. Then we present a novel analysis of subject stripping.

4.1 Problems with Merchant

Recall that the kinship nouns contain interactive prefixes that index two participants.

(27) he$^{?}$gę́:$^{?}$ęh

	he-	$^{?}$kę$^{?}$ę	-h
	3.SG.M.AG:1.SG.PAT-	younger.sibling	-NSF
	'my younger brother'		

This transitive agreement gives rise to a rather large paradigm, which has 56 distinct agreement forms. Under Merchant's approach, all 56 forms would have a denotation such that gender, but not person or number, is presupposed. Such a proposal misses the generalization that person and number, but not gender, cannot involve a mismatch. That is, among the 56 forms it is a mere coincidence that in all of them it is gender but not person or number that is presupposed. This proposal also involves massive redundancy across the Lexicon. That is, all 56 forms for each kinship noun must be stored separately, despite the fact that they are clearly morphologically decomposable and able to be built syntactically under the Single Engine Hypothesis (Borer, 2005, Marantz, 1997).

Morphologically, the problem runs deeper than the picture painted above. As in many languages, plural morphology in English appears further from the root than gender morphology.

(28) actr-ess-es lion-ess-es

This observation is in line with most proposals for nominal structure (Picallo, 1991, Ritter, 1992, 1993) and is a key component of Merchant's proposal as the N+gender composite can be stored as a lexical item with the number morphology added by the syntactic component. In Cayuga, however, person and gender morphology (often syncretic) appears further from the root than number morphology. Consider the following examples.

(29) a. hadiksá:ʔah
ha- ti- ksaʔ -ah
3.SG.M.AG- PL- child -NS
'two boys'

b. gwaksá:ʔah
k- wa- ksaʔ -ah
1.SG.AG- PL- child -NS
'we/us children'/'We are children.'

Given the problems with Merchant's approach for the Cayuga facts, I seek an alternate explanation, which I provide in the next section.

4.2 Humanness and Animacy

Ritter and Wiltschko (2015) investigate the property of humanness in Blackfoot (Algonquian) and propose that languages universally make use of an H feature.[3] I adopt their proposal here and assume that H is a feature of human nouns and is interpretable. Furthermore, this feature is obligatorily valued for gender. Non-human nouns and verbs lack this feature. The question that faces us is where this [H] feature resides.[4] The locus of gender has been the topic of much discussion (Bobaljik & Zocca, 2011, Carminati, 2005, Carstairs-McCarthy, 1994, Kramer, 2015, Picallo, 1991, Ritter, 1993, Spencer, 2002). The consensus of these studies is that gender resides on *n*. There is evidence that the same holds in Cayuga. Recall that non-human nouns consistently appear with the noun stem former /-aʔ/. Human nouns have a different noun stem former that varies (though they usually take the form /-h/ or /-ah/). The noun stem former is always immediately to the right of the noun root, thus it is reasonable to assume that the noun stem former is an *n*. Taking the cross-linguistic results that the locus of gender is on *n*,

[3] Ritter and Wiltschko investigate phenomena in English, Spanish, and Blackfoot that support the universality of their proposal. They contrast humanness, H, with grammatical animacy. Algonquian languages (of which Blackfoot is a member) are well known for dividing noun into two classes based on animacy, much like French divides noun divides nouns into two classes based on gender.

[4] Thanks to a reviewer for suggesting this line of questioning.

this gives rise to the following vocabulary items. I leave open here how the allomorphy for the human noun stem formers is to be analyzed.

(30) a. [*n*] ↔ /-aʔ/ b. [*n*, H:] ↔ /-ah/, /-h/

Furthermore, I propose that in Cayuga, this interpretable H feature is obligatorily modified by a gender feature ([H:MASC] or [H:FEM]). In the next sub-section I discuss the precise mechanism for stripping that will derive the properties shown in the previous section.

4.3 On Stripping

There are a number of proposals for the derivation of stripping in the literature (Johnson, 2009, Merchant, 2003, Wurmbrand, to appear). I will not choose among them here, as they are all compatible with the data given. These proposals differ in specific details, but they have the following properties in common, which I adopt as the mechanism for stripping in Cayuga. The element that remains in the stripped clause (here, the subject) appears in the specifier of a FocP in the left periphery. The rest of the clause, the MoodP, is either deleted (the PF-deletion approach) or is resumed by *pro* (the LF-fill in approach). We discuss these possibilities next.

Recall that agreement in Cayuga gives rise to different phonological exponents at PF. Given that person and number mismatches are tolerated in the Cayuga subject stripping construction, the PF-deletion approach cannot be on the right track since the forms in question lack identity at PF. Observe the difference in 3rd person masculine agreement and 1st person agreement.

(31) a. John aha:k neʔ swahyo:waʔ
John a-ha-k-Ø neʔ swahyo:waʔ
John FACT-3.SG.M.AG-eat-PUNC NE apple
'John ate an apple.'

b. age:k neʔ swahyo:waʔ
a-k-e-k-Ø neʔ swahyo:waʔ
FACT-1.SG.AG-EPEN-eat-PUNC NE apple
'I ate an apple.'

Nevertheless, subject stripping is allowed with these two sentences, as (19) shows. See Merchant (2014) for similar arguments for the Greek data he presents. I conclude, then, the lack of identity at PF fails to license PF-deletion as the source of subject stripping and that an LF-fill in approach is necessary.

4.4 Analysis

As argued above, the lexicalist approach to stripping in Cayuga is untenable, and thus I proposed instead that the noun stem former for human nouns, n_H, has an interpretable [H:] feature. Let's spell this proposal out in detail now. First, the noun stem former for inanimate nouns, n_I, and *v* do not possess this [H:] feature. Furthermore, this feature is obligatorily valued as either feminine or masculine, [H:FEM] and [H:MASC], respectively.[5] Specifically, the [H:] feature on *n* is valued as masculine or feminine by the natural gender of the referent.

With this background in place I now present the analysis. Let's consider the structure for *k* ('eat') first, where person, number, and gender mismatches are permitted. Although I have mentioned above that number, subject agreement, and object agreement are represented by distinct morphemes (though they are sometimes syncretic), I present the analysis with a single Probe on T for simplicity as the actual structure of the Probes do not matter for the current analysis (though see Barrie, 2016 for a discussion of the number Probe). Note that since mood does not play a role in the following discussion, I have left MoodP out to save space in the following tree structures.

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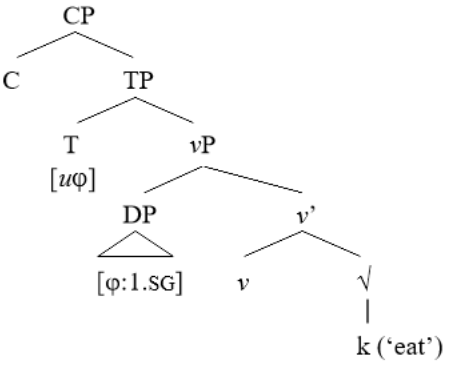
[5] One might wonder why the lexical roots themselves are not specified as human or non-human. Such an approach would run afoul of the Chomsky-Borer Conjecture (Borer, 2005), namely that lexical roots possess no formal features. Kayne (2006) proposes that n encodes a list of what roots it can appear with, thus leaving the lexical roots with no formal features.

(32)



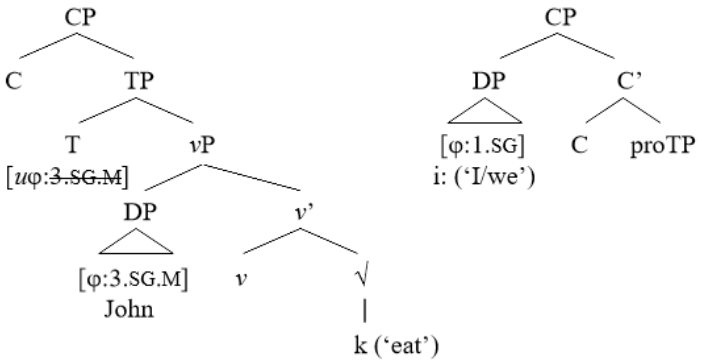
The Probe on T, [*uφ*], is valued by the subject (and object if present). Since the [*uφ*] features on T are uninterpretable, they are deleted at Spell-Out and do not appear at LF. They are present only at PF for Vocabulary Insertion. Now, let's consider the derivation of subject stripping with *eat*. Consider the following example. Note that the overt pronoun i: is neutral with respect to number.

(33) John aha:k neˀ swahyo:waˀ, neˀ hęˀne:ˀ i:
John he.ate apple and also I/we
'John ate an apple, and so did I/we.'

The two CPs in this example have the following structure at LF just after Spell-Out. Note that I have ignored the intermediate *v*P phrase for ease of exposition. I have also ignored the surface position of the subject since a discussion of the position of overt arguments would take us too far afield. For the purposes of this discussion, the position of the overt subject in the first clause does not matter for the analysis. The position of the subject in the stripped clause, however, does matter, and I have assumed, following other analyses of stripping mentioned above that the overt subject appears in SpecFocP. This is consistent with the fact that these pronouns typically appear in focussed environments (Barrie, Chung & Deer, 2014). To be clear, the T node contains an uninterpretable φ-feature. At LF, the uninterpretable feature has been deleted, leaving only the tense feature as shown. The φ-features on the DP, of course, are interpretable, and so remain at LF. Also,

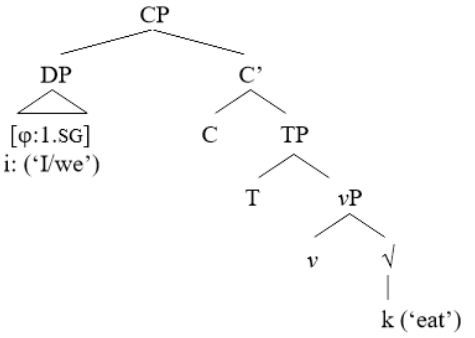
for ease of exposition, the CP layer is not expanded.

(34)



The empty TP (represented as proTP) is filled in at LF with the material in the source clause. Since the uninterpretable features have been deleted, no mismatch will arise between the two clauses. After proTP has been filled in at LF, we get the following structure, where the external theta-role is associated with the overt DP in SpecFocP (shown as CP here).[6]

(35)



[6] I hesitate to posit any kind of syntactic means of associating the theta-role with the DP since such assignment seems to be free, generally. In the following example of stripping in English, the single DP in the stripped clause could refer either to the subject or the object in the elided portion of the sentence.

i. John likes chocolate, but not Mary. (John doesn't like Mary. OR Mary doesn't like chocolate.)

Now we move on to stripping with predicate nouns. We begin with an example of an epicene noun before moving on to examples of ungrammatical mismatches with other human nouns. Consider the following example, repeated from above.

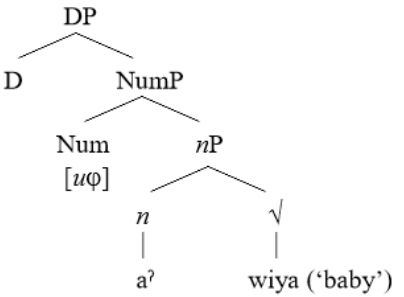
(36) Johnny owi:ya:ʔah, neʔ hęne:ʔ Rosie

Johnny	o-wiya-aʔ-ah	neʔ hęneʔ	Rosie
Johnny	NPREF-baby-NSF-DIM	and also	Rosie

'Johnny is a baby, and so is Rosie.'

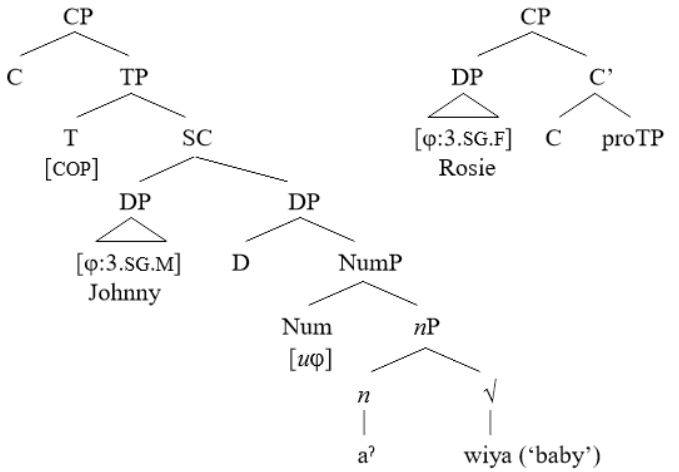
There is no overt copular in Cayuga, and the syntax of copular constructions in Iroquoian has not been investigated in great depth (see Akkus, 2016 for a preliminary discussion of copular clauses in Cherokee, Southern Iroquoian). An in depth discussion of copular constructions would take us too far afield, so we concentrate on the stripping facts discussed above. I represent agreement on a DP-internal functional head (NumP). Recall also that the noun stem former appears on *n*, following the argumentation in the previous sections. Thus, the structure for the predicate noun is as shown below.

(37)



For convenience, I represent the copular construction as follows, with the T head represented simply as COP. There are also various analyses for copular constructions on the market (den Dikken, 2006, Mikkelson, 2005, Moro, 1997, Roy, 2013); nevertheless, I eschew a complete discussion here and simply assume a small clause (SC) for predicate noun constructions.

(38)



Since there is no agreement relation between the subject (*John*) and the predicate noun (*my friend*) we do not expect any grammaticality violation due to gender mismatch. As such, we do not consider the LF structure for the stripping construction.

Now consider an example of stripping with human nouns that induce a violation upon gender mismatch. We will consider the following example.

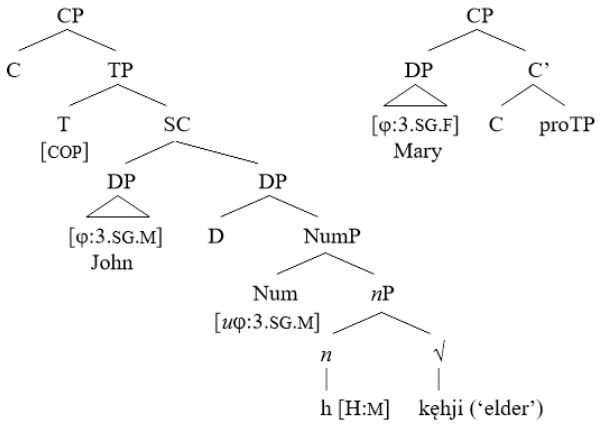
(39) *John hagę́hjih, ne? hę́ne:? Mary

John	ha-kę́hji-h,	ne? hę́ne:?	Mary
John	3.SG.M.AG-elder-NS	and also	Mary

('John is an elder, and so is Mary.')

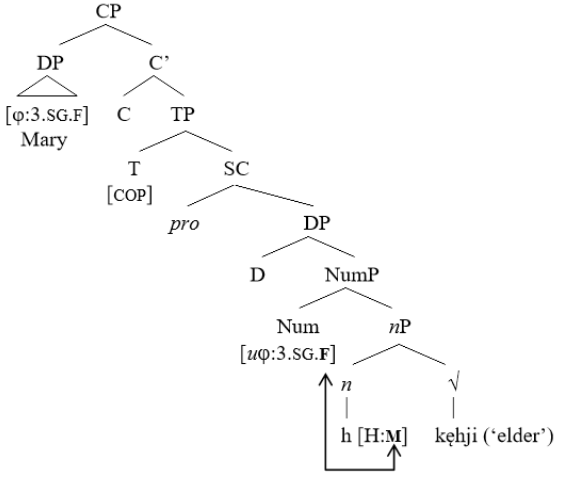
Recall that *kę́hji* ('elder') is hypothesized to have an H feature, which is obligatorily valued as masculine or feminine. The structure at Spell-Out for this stripping construction is shown below. Observe that the predicate noun agrees with the subject and that there is no generic nominal prefix as in the *baby* example above.

(40)



Again, the base is copied into the proTP gap at LF, which again only has LF interpretable features. This time, however, one such interpretable feature includes the [H] feature, which is valued as masculine in this example. This [H:MASC] feature is copied as well. When the remnant in SpecCP is associated with the subject position of SC (represented as *pro*), the gender feature on [H] must match that of the subject, otherwise the derivation will crash. Here is the LF structure for the deviant example above, where the gender features do not match, causing the derivation to crash at LF.

(41)



To summarize, I have presented an analysis for stripping in Cayuga in which the remnant in the stripped clause appears in the specifier of a FocP and the null TP is resumed at LF by copying the features of the base. Since this process happens at LF, uninterpretable features have already been deleted, allowing for various kinds of feature mismatches. We have seen that when certain human nouns are used as predicates, gender mismatches are not found. I proposed that such human nouns are selected by a noun stem former, n_H, encoded with a humanness feature [H], which is obligatorily valued as either masculine or feminine. This feature is interpretable, so it survives after Spell-Out at LF. Thus, the potential for gender mismatch arises since [H], which its gender specified, must match the gender of the remnant in the stripping construction.

5. Conclusion

We have seen that Cayuga (Iroquoian) exhibits a kind of ellipsis known as stripping. In this construction person, number and gender mismatches are typically allowed, except with certain human predicate nouns. The data were compared with similar data from Greek analyzed by Merchant (2014); however, the analysis Merchant provided for the Greek data was not amenable to the Cayuga facts. Instead, I proposed that human nouns are selected by an *n* endowed with an interpretable human feature, [H], which is specified either as masculine or feminine.

Stripping was argued to be derived by an LF-fill in process, by which the interpretable features of the base were copied into the clause containing ellipsis. Uninterpretable features, including φ-features on T are deleted at Spell-Out and not present at LF. This allows for person and number mismatches freely. It also allows for gender mismatches on verbal predicates and certain human nominal predicates. Other human nominal predicates are selected by an *n* that possesses the interpretable [H] feature mentioned above, which survives at LF. Since the [H] feature is valued for gender, the gender feature must be matched with the antecedent at LF.

Finally, the proposal here can be seen as a rejection of the lexicalist approach of Merchant (2014). Specifically, Merchant (2014) posits that the gendered forms of certain human nouns in Greek (such as *teacher*

and *sibling*) contain gender presuppositions in the lexical denotations. I argued above that this approach is untenable, partly due to the much larger agreement paradigm in Cayuga, making a lexicalist approach rather unwieldy. In the bigger architectural framework, however, the current approach is consistent with the Single Engine Hypothesis (Arad, 2003, Marantz, 1997). Whether the current approach can be adapted to the Greek data remains to be seen. Once crucial difference between Cayuga and Greek is that while Greek has forms that allow mismatch in one direction only (the equivalent to the English *waiter/waitress* examples above), Cayuga does not. The Cayuga noun stem formers are either specified with the [H] feature (thus prohibiting any kind of gender mismatch) or are not (in which case any gender mismatch is possible). Recall that the Greek facts were derived by assuming only the feminine forms presuppose the gender of the referent. To the extent that the Greek/English forms represent a true typological difference in ellipsis possibilities from the Cayuga facts, proposing a different means of encoding gender features seems to be on the right track.

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