

# Discrepancies between Projection and Selection: Split Coordination and Raising to Object in Passamaquoddy\*

Benjamin Bruening

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## 1 Introduction: The Projection Principle

Chomsky (1993) suggests that the Projection Principle of Chomsky (1981) and much subsequent work can be subsumed under a more general Principle of Full Interpretation, which says simply that every element present in the syntax must be interpretable at the interfaces. The relevant interface here is the semantic interface, where all arguments, and all predicates, must compose and be interpreted. The original Projection Principle stipulated one specific requirement which is no longer present in the Principle of Full Interpretation: it stipulated that only selected arguments can appear as sister to a verb, and selected arguments must appear as sister to a verb. This was modified subsequent to Chomsky (1981) to allow for selected arguments to appear as specifiers; see, for instance, Larson (1988), where the requirement is simply that selected arguments must appear in the projection headed by the selecting verb (Principle P1, p. 382 of Larson 1988).

The purpose of this paper is to show that the less restrictive Principle of Full Interpretation is more likely to be correct than either the original Projection Principle or subsequent modifications like that of Larson (1988). I illustrate two phenomena in Passamaquoddy where selection and projection do not match. In the first, what I call *split coordination*, an NP is projected in the canonical object position, as sister to the verb, but it is not interpreted there; instead it is interpreted via Agree (Chomsky 2000) as a subject. In the second, *raising to object*, a verb selects an NP object and a property as its arguments, but what is actually projected in the syntax is only an embedded CP. Consequently, an NP within the lower CP must move, abstracting over the CP to create a property; this property composes with the selecting verb, and then the moved NP composes with the verb, again via Agree. Neither analysis here would be allowed by the Projection Principle, but they are allowed by a Principle of Full Interpretation, which requires only that everything combine in the semantics.

I adopt a type-driven semantic composition in the syntax, like that of Heim and Kratzer (1998), but make one modification with important implications. This is that Function Application can take place via Agree in addition to direct composition under sisterhood. This has important implications for our understanding of various phenomena. In addition, if the analysis presented here is correct, syntactic operations can be driven by the need to compose elements semantically. This is the case in Heim and Kratzer (1998), as well (for instance, in driving Quantifier Raising), but I use it to account for mismatches between projection and selection in these two phenomena, and suggest that it might be at work in Exceptional Case Marking (ECM) and raising to subject in English and other languages as well. Since these two constructions have figured prominently in generative theorizing, this approach has potential ramifications throughout the theory.

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- (4) a. opu-**wok**    b. n-tokom-a-**k**    c. nt-op  
       sit-**3P**        1-hit-Dir-**3P**    1-sit  
       ‘they sit’        ‘I hit them’        ‘I sit’

The schwa of the suffix *-(o)k* regularly deletes after certain vowels.<sup>3</sup>

With this much background, we can turn to the two phenomena at issue, *split coordination* and *raising to object*.

### 3 Split Coordination

Passamaquoddy has the familiar English type of coordination, with a word meaning ‘and’:

- (5) Piyel **naka** Mali ali-wiciyew-t-**uwok**.  
       P. and M. around-go.with-Recip-**3P**  
       ‘Piyel and Mali are going around with each other.’

This conjunction is used to coordinate all kinds of categories, not just NPs. The following examples illustrate VP and V coordination (example 6 could be coordination somewhere above VP, but below Tense; the two verbs are sharing a future second-position clitic, *=(o)c*):

- (6) K-tomokuhu-ku-k=c naka k-tomokipil-ku-n.  
       2-crush-Inv-3P=Fut and 2-trample-Inv-N  
       ‘They’ll crush you and trample you.’ (Mitchell 1921/1976c, 12)
- (7) Nit etuci            Koluskap wihqno-k naka mace-ptu-n            wapap, naci-koluluwew-a-n  
       then at.that.point K.            take-3Conj and (3)-start-take.with-N wampum (3)-go.do-speak.for-Dir-N  
       Mikcic-ol.  
       M.-Obv  
       ‘Taking wampum, Koluskap goes to negotiate on behalf of Mikcic.’ (Lit. ‘Koluskap takes and carries wampum to go speak for Mikcic.’)

In such coordinations, the two constituents appear to be of equal status with regard to grammatical role, case, and other syntactic phenomena (although asymmetries appear on closer inspection; for a good overview of such asymmetries in various languages, see Progovac 1998). I will not concern myself with this type of coordination here, but concentrate on a different type of coordination.

This other type of coordination is only used with NP arguments in Passamaquoddy. I will refer to it as *split coordination* for reasons that will become obvious in a moment. As far as I am aware this construction has only been noted in print in an unpublished manuscript by Quicoli (undated), in the closely related language Micmac; I learned of the construction from Ken Hale (personal communication). In this construction two NPs agree together as a plural subject of a verb, but one appears before the verb while the other appears after the verb and is marked obviative:

- (8) Piyel ali-wiciyew-t-**uwok**            Mali-wol.  
       P. around-go.with-Recip-**3P** M.-Obv  
       ‘Piyel and Mali are going around with each other.’

The verbal agreement here is just like it is in the English type of coordination, where an overt *and* appears, as in (5) above. The verb indexes both NPs as a single, plural subject. (In fact, reciprocal verbs like this one *require* a plural subject; see section 3.2.5 below.) Despite the shared agreement, however, numerous phenomena treat the two NPs as distinct syntactic arguments. I will suggest that the second NP, the one marked obviative, is generated

<sup>3</sup>Passamaquoddy also has a general process of final truncation, so morphemes will look different when they are final and when they are followed by another suffix. For instance, the stem meaning ‘sit’ is *opi*, but the final vowel deletes in (4c) (and changes to *-u* in 4a). Compare (40) below, where the final vowel surfaces before a suffix.

in the canonical object position, as sister to the verb. As far as phrase structure goes, then, the two NPs are distinct entities, and will behave much like a subject and an object of a transitive sentence. In the semantics, however, the two NPs are both interpreted as subjects. I will suggest that this comes about through Agree. Importantly, there is no restriction limiting the sister of the verb to a selected argument of the verb; the only restriction is that all elements receive an interpretation.

### 3.1 Differences between Split and Regular Coordination

Split coordination differs from ordinary coordination in several respects, enumerated below. In all of these phenomena the second, obviative NP acts much like an object, even though it is not one semantically. I will argue that this follows from it being generated in the canonical object position.

#### 3.1.1 Difference 1: Obviation

With an overt ‘and’, the second NP may not be obviative if the argument as a whole is proximate:

- (9) Piyel naka Mali-(\***wol**) ali-wiciyew-t-uwok.  
 P. and M.-(\*Obv) around-go.with-Recip-3P  
 ‘Piyel and Mali are going around with each other.’

In split coordination, however, the second NP *must* be obviative:

- (10) Piyel ali-wiciyew-t-uwok Mali-\*(**wol**).  
 P. around-go.with-Recip-3P M.-\*(Obv)  
 ‘Piyel and Mali are going around with each other.’

In this respect the two NPs in split coordination act like separate arguments of the verb (subject and object; see 2 above), and not like the same argument.

#### 3.1.2 Difference 2: Word Order

The second difference is in the word order. The most natural word order in coordination with *naka* is with the two NPs together, as in the examples above. In contrast, in split coordination, the most natural word order is with the proximate NP in a preverbal position and the obviative NP postverbal (hence *split coordination*):

- (11) Piyel ali-wiciyew-t-uwok Mali-wol.  
 P. around-go.with-Recip-3P M.-Obv  
 ‘Piyel and Mali are going around with each other.’

This is the most natural order of a transitive sentence, too; see (2) and (32).

#### 3.1.3 Difference 3: Extraction

The third difference is that, just like in English, it is not possible to extract from conjunction with an overt ‘and’:<sup>4</sup>

- (12) \*Keqsey Estela usam-som-a-t Pilips-ol [ *t* naka toqonikon-ok] ?  
 what Stella excessive-feed-Dir-3Conj P.-Obv and dumpling-3P  
 ‘What did Estela feed Pilips too much of *t* and dumplings?’

In contrast, it *is* possible to extract from split coordination:

<sup>4</sup>Example (12) is grammatical with the meaning, ‘What did Estela feed Pilips too much of, in addition to dumplings?’, but in this case the ‘and’ phrase is not coordinated with the extracted element.

- (13) Wen-il Mali ali-wiciyew-ti-htic-il?  
 who-Obv M. around-go.with-Recip-3PConj-PartObv  
 ‘Who are Mali and *t* going around with each other?’

Note that it is possible to extract either the proximate or the obviative member of the coordination:

- (14) a. **Wen-il** Mali ali-wiciyew-ti-htic-il?  
 who-Obv M. around-go.with-Recip-3PConj-PartObv  
 ‘Who are Mali and *t* going around with each other?’  
 b. **Wen** ali-wiciyew-ti-htit Mali-wol?  
 who around-go.with-Recip-3PConj M-Obv  
 ‘Who are *t* and Mali going around with each other?’

In this respect, as well, the two NPs in split coordination act as though they are distinct arguments, even though they bear the same semantic role. In a transitive sentence, for instance, it is possible to extract either the proximate or the obviative NP, and either the subject or the object.

### 3.1.4 Summary of Differences

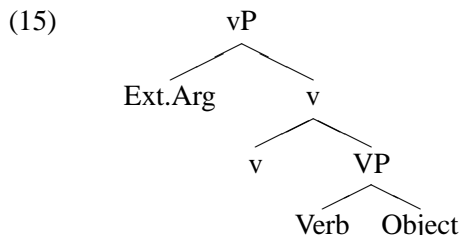
In obviation, word order, and extraction, then, the two NPs of split coordination act like distinct syntactic arguments. In these respects they look very much like the subject and the object of a transitive sentence, only they are both interpreted together as the subject, and they both agree together as the subject.

## 3.2 Analysis of Split Coordination

Any analysis of split coordination will have to account for the fact that, as far as the semantics and the agreement are concerned, the two NPs together are a single argument, but, as far as other syntactic phenomena are concerned, they are two distinct arguments. The analysis that I propose requires giving up the Projection Principle, and allowing an NP to be projected as complement to a verb that does not select an argument. Basically, the second, obviative, NP will be projected as sister to the verb, but will not be interpreted there; instead it will be interpreted via Agree (Chomsky 2000) with the head that projects the subject, *v*. As stated in the introduction, this analysis satisfies Full Interpretation (all elements receive an interpretation), but violates the Projection Principle. To the extent that it explains properties of this construction, as I show that it does below, it therefore supports the Principle of Full Interpretation over the Projection Principle.

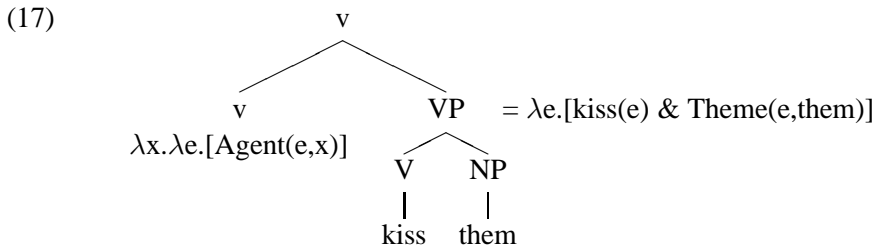
### 3.2.1 Subjects and Objects

Recent research on the nature of external arguments has concluded that they are not actually arguments of the verb, but are arguments of some higher projection (this idea goes back at least to Marantz 1984). Kratzer (1996) and Chomsky (1995, 2000) suggest that the external argument is not an argument of any projection of the verb, but is instead introduced by a higher functional head. Kratzer calls this head Voice; Chomsky calls it *v*. I will use Chomsky’s notation here, but Kratzer’s semantics. In this theory the verb takes its internal argument as its sister, inside VP, but the external argument is projected as the specifier of *v*:



The way this works semantically in Kratzer's system is that a transitive verb is a two-place predicate taking an individual argument (type  $\langle e \rangle$ ) and an event argument (type  $\langle s \rangle$ ), as in (16). It combines with its internal argument to produce a one-place predicate of events, as shown in (17). The  $v$  head is also a two-place predicate taking an individual and an event argument.

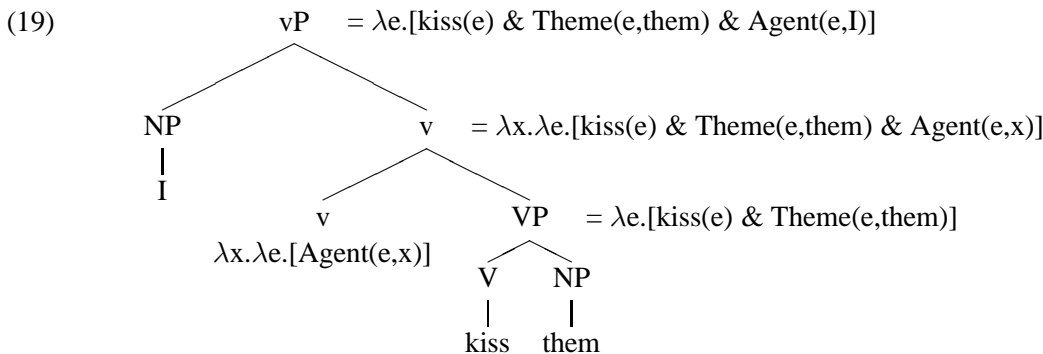
(16)  $[[\text{kiss}]] = \lambda x. \lambda e. [\text{kiss}(e) \ \& \ \text{Theme}(e, x)]$



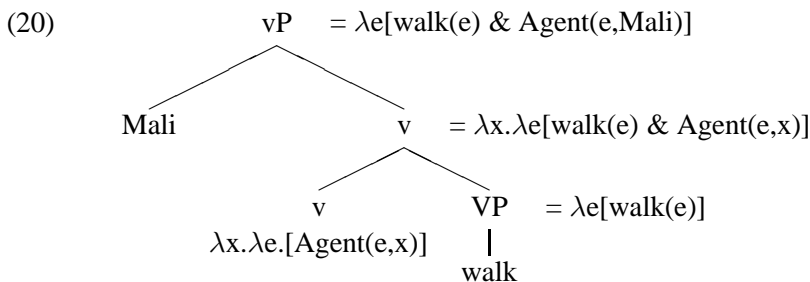
The  $v$  head combines with the  $VP$  via the operation of Event Identification:

(18) Event Identification  
 $f_{\langle e, st \rangle} + g_{\langle s, t \rangle} \rightarrow h_{\langle e, st \rangle} = \lambda x. \lambda e. [g(e) \ \& \ f(x)(e)]$

Event Identification takes two predicates of events, one of which also takes an individual argument, and turns them into a single predicate of events taking a type  $\langle e \rangle$  argument, basically by conjoining them. The full derivation is shown below:



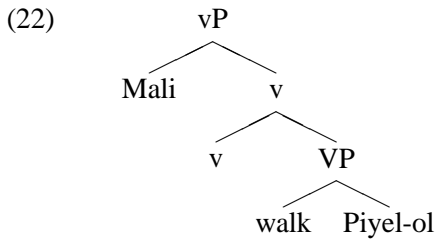
If the verb is intransitive, it is simply a predicate of events to begin with:



### 3.2.2 The Second NP in Split Coordination

I would like to suggest that the way subjects and objects are projected in the theory given above is just the usual case. Suppose that, quite generally,  $V$  may take a sister. Usually it does not if it is not also a function that takes a type  $\langle e \rangle$  argument. But suppose nothing in the syntax would rule out projecting an  $NP$  as sister to an intransitive verb. The Principle of Full Interpretation will rule this out at the interface with the semantics, unless there is some other way to interpret said  $NP$ . Suppose that there is. Then the structure of split coordination would be the following, with one  $NP$  in  $Spec-vP$  and the other inside  $VP$ :

- (21) Mali al-kawtuw-ok Piyel-ol.  
 Mali around-walk(Dual)-3P P.-Obv  
 ‘Mali and Piyel are walking around.’

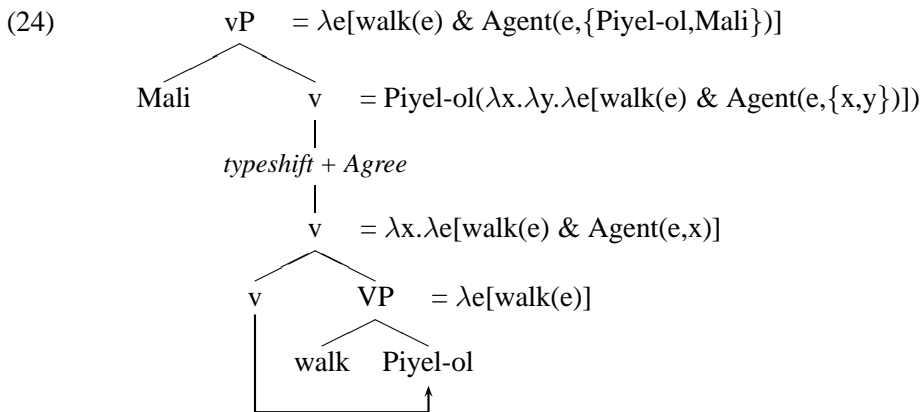


Since a verb like ‘walk’ is only a predicate of events, it cannot combine with the NP *Piyel-ol*. Let us suppose that in such a case semantic composition proceeds without combining these two elements. ‘Walk’ can combine with *v* by Event Identification, as above. The resulting combination could then combine with the subject, *Mali*. If it did, and we never combined *Piyel-ol* with anything, Full Interpretation would be violated. Suppose there is another option, however. *v* can Agree, in the sense of Chomsky (2000), with *Piyel-ol*. I suggest that Function Application can take place via Agree as well as by direct composition under sisterhood. I will further suggest that a head that has multiple specifiers, or that enters into multiple Agree relations, or has a specifier and also enters into an Agree relation, can iterate. I propose the following type-shifting rule:

- (23) Type-shifting rule for multiple specifiers or multiple Agree:  
 $\lambda x.f(x) \mapsto \lambda x.\lambda y.f(\{x,y\})$

The rule shifts the function from taking a single argument to taking two arguments, and interprets the two as a set. (I take no stand on how to represent plurals, so the rule can use  $\{x,y\}$  or  $x \oplus y$ , depending on one’s theory. I will use  $\{x,y\}$  here.)

How this will work in the case under discussion is shown below:



The typeshifting rule turns *v* into a two-place function over individuals. Agree with *Piyel-ol* supplies one of the arguments; direct composition with Spec-vP supplies the other. vP ends up denoting a predicate of events, where the event is an event of walking whose agent is the set of Piyel and Mali. This is exactly the semantics we need.

This theory captures the semantics of split coordination, but it does so at the expense of the Projection Principle. An NP is generated as sister to a verb that does not select an NP, and it is not interpreted as the object of that verb. Instead it is interpreted through Agree with *v* as an argument of *v*. In what follows, I will argue that this theory explains all the peculiar features of this construction, and hence that Chomsky is right to dispense with the Projection Principle in favor of a looser Principle of Full Interpretation.

### 3.2.3 Intransitives Only

Some evidence that this is the right way to handle split coordination comes from the fact that it is only grammatical with intransitives, as shown below. It is possible with the subject of an intransitive only (25a), and is impossible

with the subject of a transitive (25b), the subject of a transitive inverse (25c), or the object of a transitive direct (25d):

- (25) a. Mali al-kawtuw-**ok** Piyel-ol.  
 Mali around-walk(Dual)-**3P** P.-Obv  
 ‘Mali and Piyel are walking around.’
- b. \*Mali nomiy-a-**wa-l** Piyel-ol Susehp-ol Kehlis-k.  
 M. see-Dir-**3P**-Obv P.-Obv S.-Obv C.-Loc  
 ‘Mali and Piyel saw Susehp in Calais.’
- c. \*Muwinuw-ok n-kolh-uku-**k** malsom.  
 bear-3P 1-trap-Inv-**3P** wolf.ObvP  
 ‘Bears and wolves caught me in a trap.’
- d. \*Muwin n-kolh-a-**k** mahtoqehsuw-ol.  
 bear 1-trap-Dir-**3P** rabbit-Obv  
 ‘I caught a bear and a rabbit in a trap.’

Note that (25c–d) show that the problem is not that there are too many obviatives; first persons do not induce obviation in third persons. In addition, ditransitives (including possessor raising constructions) have one proximate NP and two obviative NPs if all the arguments are animate third persons, meaning that there is no general ban on two obviative NPs:

- (26) Piyel ’-koskaht-uw-a-n Susehp-ol ’t-akom.  
 P. 3-lose-Ditr-Dir-N.ObvP S.-Obv 3-snowshoe.ObvP  
 ‘Piyel lost Susehp’s snowshoes (on him).’

An explanation for the restriction to intransitives is immediately available given the Agree theory above, and an auxiliary assumption regarding phrase structure. The second NP in split coordination is generated as sister to a verb that does not select for an NP argument. It follows that split coordination is only possible with intransitives. A transitive verb combines with its sister as its argument; this is its object. If we were to not combine the two, and use Agree to apply the Agent function to the sister to the verb as above, Full Interpretation would be violated because the verb would be lacking its argument. I assume that there is no other place an NP could be generated; quite generally, heads only take one complement, and one specifier (though I leave open whether Chomsky 2000 is correct that heads may have an additional specifier as a landing site for movement; this does not affect the analysis here). Now, we have to explain why we could not project the object as the complement to V and combine it with V, and then project another NP as the specifier of V, and combine it with v via Agree. This is where the auxiliary assumption comes in: I assume that heads may only take one argument, in addition to embedding further clause structure. So v takes one NP argument, and embeds VP; VP may embed a CP, or other clausal heads (perhaps an applicative), but it only takes one NP argument (in addition, or alone). I assume that in ditransitives each object is projected by a different head (one of them an applicative head, as in Marantz 1993).

It should be obvious that there is no way to have two NPs within VP, then; there is simply nowhere to generate a second one. (Note that it is crucial for this theory to work that empty VP shells, as in Larson 1988, must not exist.) In addition, I also assume that Agree may not be established between a head and an adjunct. So there is no way to adjoin an NP to VP (or somewhere else) and have it be interpreted via Agree with v.

I restate these assumptions below:

- (27) a. PS Principle: Heads may project only one XP argument in addition to embedding clausal structure as their complement.
- b. Agree may take place only between heads and specifiers/complements; adjuncts are invisible to Agree.



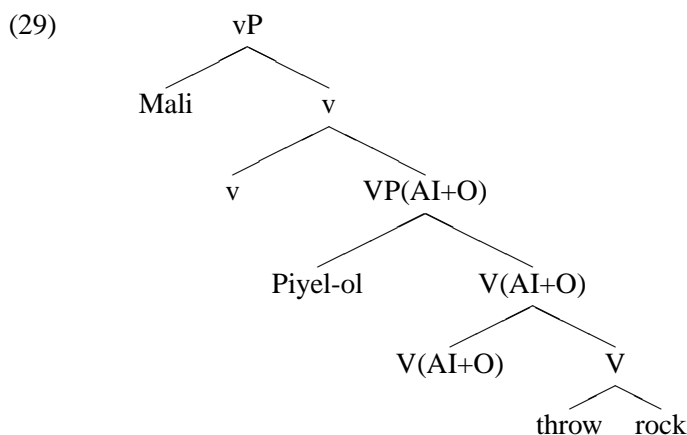
These assumptions, plus the Agree theory of split coordination, explain the transitivity restriction on split coordination.

There is one exception to the transitivity restriction: a class of AI+O verbs, so called because they are morphologically intransitive (AI stands for “animate intransitive,” meaning an intransitive verb that has an animate subject) but take a syntactic object (“+O”). The verb meaning ‘throw’ is such a verb:

- (28) Mali ’-kisi-saputiy-ahka-ni-**ya** Piyel-ol *ponapsq* possiyanteski-k.  
 M. 3-Perf-through-throw.AI+O-N-**3P** P.-Obv rock window-Loc  
 ‘Mali and Piyel threw a rock through the window.’

In this sentence, the subject is split around the verb, and the second NP of the coordinated NP is obviative, but the verb has an object, *ponapsq*, ‘rock’.

Bruening (2001, ch.2) suggests that AI+O verbs involve an additional functional head between V and v, V(AI+O):



This additional head was suggested to explain why AI+O verbs do not have Inverse forms. The idea was that the additional head blocks the object (here, ‘rock’) from moving to a higher position in the Inverse. See Bruening (2001, ch.2) for details. If this structure is correct, this additional head provides a specifier where a second subject can be generated, interpreted via Agree with v, and we explain why split coordination is grammatical with just this class of transitive verbs. We derive the correct word order if the verb moves through V(AI+O) to v.

Morphologically intransitive verbs that take CP complements also allow split coordination:<sup>5</sup>

- (30) Mali yuhu-t-uwok Piyel-ol [<sub>CP</sub> wen-ihī keti-nipuwam-a-htic-ihī ] .  
 M. say.to-Recip-3P P.-Obv who-ObvP IC.Fut-marry-Dir-3PConj-PartObvP  
 ‘Mali and Piyel told each other who they’re going to marry.’

This would follow if, as stated above, heads can project one NP-type argument in addition to embedding clause structure. Apparently, V can have an NP specifier and a CP complement, although it cannot have an NP specifier and an NP complement.

In summary, the theory advanced here, which permits generating NPs in unused specifier or complement positions, succeeds in explaining the rather complicated transitivity restrictions on split coordination.

### 3.2.4 Word Order

Recall that the natural word order of split coordination is with the proximate NP in a preverbal position and the obviative NP postverbal:

<sup>5</sup>I have one example indicating that morphologically transitive clause-embedding verbs do not allow split coordination; however, this one example could be ungrammatical for an unrelated reason, so I hesitate to draw conclusions from it.

- (31) *Piyel ali-wiciyew-t-uwok Mali-wol.*  
 P. around-go.with-Recip-3P M.-Obv  
 ‘Piyel and Mali are going around with each other.’

This is also the most natural word order of a transitive:

- (32) a. *Koluskap ’t-oli asitem-a-l nicalku-l, ...*  
 K. 3-thus answer-Dir-Obv 3.uncle-Obv  
 ‘Koluskap answers his uncle, ...’ (Mitchell 1921/1976c, 7)
- b. *Ipa, Mali San nit uci nuhsuhka-ku-n wen-il.*  
 hey Mary Jane there 3.from chase-Inv-N who-Obv  
 ‘Well, something [An.] chased after Mary Jane,’ (Newell 1979, 8)

This follows, once again, from the theory advanced here. The second NP is generated in the canonical object position, after the verb. It follows that the position it appears in in word order should be the same as a canonical object.

Different permutations in word order are also possible, just like with transitives (Passamaquoddy has fairly free word order, allowing all possible permutations of S, V, and O):

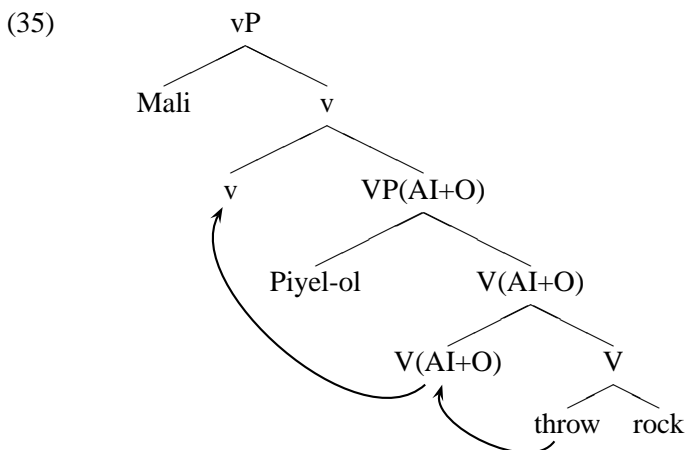
- (33) *Mali-wol Piyel ali-wiciyew-t-uwok.*  
 M.-Obv P. around-go.with-Recip-3P  
 ‘Piyel and Mali are going around with each other.’

This again follows from the theory advanced here. The two NPs are not the same argument, they are distinct NPs, and can move around separately through scrambling operations or discourse-related reordering movements.

There is one restriction, however, which appears with the AI+O class of verbs discussed above. The restriction is that the obviative NP may not follow the object of the AI+O verb:

- (34) a. *Mali ’-kis-ahka-ni-ya Piyel-ol katkuhk.*  
 M. 3-Perf-throw.AI+O-N-3P P.-Obv pot.ObvP  
 ‘Mali and Peter threw pots.’
- b. \**Mali ’-kis-ahka-ni-ya katkuhk Piyel-ol.*  
 M. 3-Perf-throw.AI+O-N-3P pot.ObvP P.-Obv  
 ‘Mali and Peter threw pots.’

The explanation for this is straightforward given the structure of AI+O verbs in (29), repeated below:



The verb moves through V(AI+O) to v, appearing in between the first NP and the second. The object, ‘rock’, appears only low in the structure. It is possible for it to scramble, but there is no landing site between the verb and

the obviative NP; we can assume that V(AI+O) is not a legitimate landing site. The only place it can move is to the left of the verb. (Rightward adjunction is only possible with heavy pauses, and is probably right-dislocation related to a pronoun.)

This theory not only explains the transitivity restriction on split coordination and the one exception to it, it also explains the restriction on word order observed in the exceptional case.

### 3.2.5 Agreement and Lexical Restrictions

So far I have only explained how the two NPs in split coordination are interpreted as the same argument semantically. It is important to show that they will be treated as the same argument morphologically as well, since they agree simultaneously on the verb as a plural subject. In addition, the two together satisfy requirements for dual or plural subjects. For instance, Passamaquoddy is like some other Native American languages (including unrelated ones, like Navajo) in having suppletive forms for ‘walk’ depending on whether the subject is singular, dual, or plural. Split coordination is grammatical with the dual form for ‘walk’, meaning that the two NPs together count as dual, but is ungrammatical with the plural form:

- (36) a. Mali al-**kawtuw**-ok Piyel-ol.  
 Mali around-walk(Dual)-3P P.-Obv  
 ‘Mali and Piyel are walking around.’  
 b. \*Mali al-**apasuw**-ok Piyel-ol.  
 Mali around-walk(>2)-3P P.-Obv  
 ‘Mali and Piyel are walking around.’

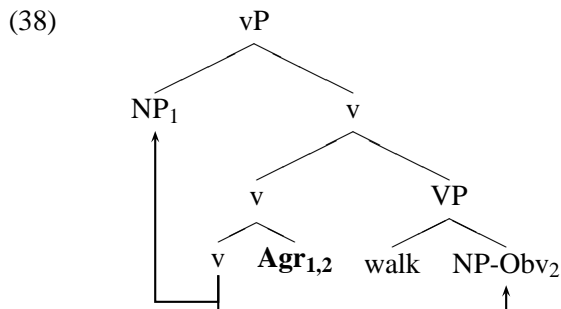
In other words, the two NPs are treated as a single, dual argument by selectional restrictions.

In addition, reciprocal verbs require a non-singular subject. Split coordination satisfies this requirement:

- (37) Piyel ali-wiciyew-t-uwok Mali-wol.  
 P. around-go.with-**Recip**-3P M.-Obv  
 ‘Piyel and Mali are going around with each other.’

The satisfaction of these lexical restrictions follows immediately from the semantics proposed above. The type-shifting rule interprets the two arguments of the function as a set, for instance,  $\{Mali, Piyel\}$ , which is dual. Given that this is the semantics, we should expect that any lexical restrictions that are satisfied by a dual will be satisfied by split coordination. This is the case, as shown above.

As for the agreement, suppose that the morpheme that agrees with the third person subject of an intransitive is an Agr node adjoined to v (see Halle and Marantz 1993), as in (38):



This Agr morpheme will take its values from Agree relations that v establishes with NPs. As stated above, v enters into an Agree relation with the obviative NP inside VP. I hypothesize that it also enters into an Agree relation with its specifier. Following Rezac (2003), the domain of a head includes the full projection of the head; accordingly, heads can Agree with their specifiers.<sup>6</sup> In the general case of an intransitive, v will *only* Agree with its specifier; there is no NP inside VP.

<sup>6</sup>One might question whether a single head is able to enter into multiple Agree relations. However, much work argues that this is indeed possible; see, for instance, Rezac 2003.

Agreement and licensing in Passamaquoddy are quite complex, and I cannot go into details here. Recall, though, that third-person subjects of intransitives agree like objects of transitives, but first- and second-person subjects of intransitives agree like subjects of transitives:

- (39) a. *opu-wok*    b. *n-tokom-a-k*    c. *nt-op*  
       *sit-3P*            *1-hit-Dir-3P*        *1-sit*  
       ‘they sit’        ‘I hit them’        ‘I sit’

I assume that *v* Agrees with and licenses the object of a transitive and third-person subjects of intransitives, as just described for the latter. I assume that a higher head (T, say) Agrees with and licenses subjects of transitives and first- and second-person subjects of intransitives. For reasons of space I will not attempt to explain this person split, but assume that licensing and Agree go together and work as described.

Note that this theory, which ties function application to Agree, predicts that split coordination will be impossible with first and second persons. Suppose a first-person pronoun was generated in Spec-vP and a second-person pronoun was generated as sister to V. The way to interpret the latter would be via Agree, as in the cases of split coordination above. But *v* does not Agree with first and second persons; it only Agrees with third persons. First and second persons Agree with and are licensed by some higher head. Hence the pronoun within VP would not Agree with *v* and therefore could not compose with it by Function Application.

While I do not have definitive judgments testing this prediction, such constructions simply do not appear. First and second persons together simply Agree as first-person plural inclusives, as in (40c):

- (40) a. *nt-op*    b. *kt-op*        c. *kt-opi-pon*    d. *nt-opi-pon*    e. *kt-opi-pa*  
       *1-sit*        *2-sit*            *2-sit-1P*        *1-sit-1P*        *2-sit-3P*  
       ‘I sit’        ‘you sit’        ‘we (incl) sit’    ‘we (excl) sit’    ‘you (pl) sit’

Split coordination with these two pronouns would look something like this:

- (41) # *Nil kt-opi-pon kil*. (unattested)  
       1 *2-sit-1P* 2  
       ‘You and I sit.’

I have never seen anything like this, and expect that it would be quite odd, if not outright impossible. Of course, this needs to be confirmed with a native speaker.

This theory also predicts that split coordination should be impossible if one of the NPs is first/second person and the other is third person. If the third person is inside VP, it should be able to Agree with *v* and be interpreted correctly, but the first/second-person NP will not Agree with *v*. This is generally not a problem with intransitives, though; I assume that a first/second-person NP combines with *v* semantically under sisterhood, but is licensed via Agree with a higher head. If this were to happen when a third-person NP was present inside VP, though, it is not clear what would happen. The fact is, again, that such a combination simply never occurs. First/second persons plus third persons always agree as in (40d–e) above; I assume that the suffixes *-pon* and *-pa* are part of the agreement with the higher head, meaning that the third-person NP is *not* Agreeing with *v*.<sup>7</sup> What is not attested is the first/second-person Agreeing with the higher head, and the third person triggering the agreement that is seen with Agree with *v* (the suffix *-ok*). I am confident that this would be morphologically impossible:

- (42) \* (*Kil*) *kt-opu-wok* (*nekomaw*). (unattested)  
       2 *2-sit-3P* 3P  
       ‘You and them sit.’

This would follow if we suppose that, when first/second person features are present and must be licensed by a higher head, *v* simply does not enter into Agree relations at all (except in a real transitive, where it Agrees with the

<sup>7</sup>The first/second person plural suffixes *-pon* and *-pa* are demonstrably different from the third person plural suffix *-(o)k*; they occupy distinct positions, as becomes clear when they occur with the preterite: *kt-opi-ponu-hpon*, 2-sit-1P-Pret, but *opu-poni-k*, sit-Pret-3P.

semantic object; we might tie this to Case features, and limit Agree in such cases to real objects; in other words, there is a dependency between features on a higher head and Case features of *v*). In any case, if this combination is indeed impossible, the present theory provides us with a way to approach the issue.

While I do not have definitive negative judgments regarding first and second persons, then, the prediction that this theory makes regarding their unacceptability in split coordination does appear to be borne out by their not being attested. The prediction results from the way the theory works, and minimal assumptions regarding the connection between morphological agreement and syntactic Agree as licensing. To the extent that the prediction is correct, then, the theory is supported.

### 3.2.6 Obviation

The next property of split coordination that we need to account for is that the postverbal NP is marked obviative. As was stated briefly above, whenever there are two independent third-person NPs in a single clause in Passamaquoddy, one will be proximate and the other will be obviative. In this theory of split coordination the two NPs are distinct NPs; hence one of them will have to be obviative, given the general principles of obviation in Passamaquoddy. Which one it is is determined by c-command.

Examining the full range of obviation in Passamaquoddy leads to a very simple generalization: higher NPs obviate lower NPs. In a ditransitive, for instance, the second object must be obviative if the first object is third person. This follows c-command: scope and variable binding indicate that the first object asymmetrically c-commands the second (see Bruening 2001, chapter 2). The same holds in the AI+O class of verbs mentioned above: the object is c-commanded by and is always obviated by the subject (Bruening 2001, chapter 2). In a possessed NP, the possessor must be proximate and the possessed NP must be obviative:

- (43) Susehp w-ikuwoss-ol  
 Jos. 3-mother-Obv  
 ‘Joseph’s mother’

In other words, whenever c-command is clear, it is always the lower of two NPs that is obviative.

Things become a little more complicated in transitives. In the Direct, the subject is proximate and the object is obviative, which straightforwardly follows c-command (subjects c-command objects). But there is also the option of using the Inverse, where the subject is obviative while the object is proximate. However, it can be shown that the Inverse reverses hierarchical relations, meaning that the proximate (the object) still c-commands the obviative (the subject). For instance, using the Inverse gets around weak crossover:

- (44) Wen pihce t w-itapihi-l nekol-ih t kcihku-k?  
 who long.ago 3-friend-Obv IC.leave-3Conj<sup>Inv</sup> forest-Loc  
 ‘Who<sub>1</sub> (Prox) did his<sub>1</sub> friend (Obv) abandon in the forest a long time ago?’

The fact that there is no WCO in the Inverse indicates that the Inverse includes a step of A-movement that carries the object over the subject, as indicated by the movement arrows in (44). When the wh-word then undergoes wh-movement, there is no crossover (the launching site for wh-movement c-commands the pronoun to be bound as a variable). If this is correct, it means that proximates always c-command obviatives in Passamaquoddy, even in the Inverse.

When the Inverse cannot be used, for instance with an inanimate object, WCO does appear:

- (45) \*Keqsey pett-aqoso-k [NP not kis-uwikho-k ] t?  
 what IC.accidentally-burn-3Conj that.An Perf-write-3Conj  
 ‘What<sub>1</sub> did the one who wrote it<sub>1</sub> accidentally burn?’

This means that it is not the case that WCO simply never appears in Passamaquoddy; it is only the step of A-movement in the Inverse that gets around it. WCO and scope are therefore reliable indicators of c-command relations in Passamaquoddy.

Going back to split coordination, the movement option of the Inverse is simply not available in intransitives. As we saw above, split coordination is only allowed with intransitives; therefore, the NP that is generated in Spec-vP will always c-command the NP that is generated as sister to V. It follows that the former, which appears preverbally in the unmarked case, will be proximate, and the latter, which is postverbal in the unmarked case, will always be obviative. (I assume that scrambling and discourse-related reordering operations are A-bar movement and are irrelevant to the A-positions that determine obviation and scope and binding.) The possibility of variable binding does indicate that the proximate NP c-commands the obviative one in split coordination:

- (46) *Psi=te wen* ali-wiciyew-t-uwok        **'-tutem-isqih-il.**  
 everyone    around-go.with-Recip-3P 3-white.friend-Female-Obv  
 'Everyone<sub>1</sub> and his<sub>1</sub> girlfriend are going around with each other.'

Unfortunately, it is extremely difficult, if not impossible, to show that the obviative NP may not bind a variable in the proximate NP. However, the fact that relevant examples are impossible to construct seems to me to be an argument that variable binding in this direction is impossible.

In summary, one NP in split coordination must be obviative given the principle that if there are two distinct NPs in the same clause, one of them must be obviative. The lower NP is the one that is marked obviative given the principle that higher NPs obviate lower NPs.

### 3.2.7 Differential Extraction

As was shown above, each NP can undergo movement separately from the other in split coordination. This is true for every type of movement in Passamaquoddy; the following examples illustrate wh-questions and relative clauses:

- (47) *Wen-il* Mali ali-wiciyew-ti-htic-il?  
 who-Obv M.    around-go.with-Recip-3PConj-PartObv  
 'Who are Mali and *t* going around with each other?' *WH-Question*
- (48) *Wot nit skitap* [ *Mali utuhkmin-ti-htit* ] .  
 this.An that man    M.    date-Recip-3PConj  
 'This is the man that Mali and *t* are dating each other.' *Relative Clause*

This is definitely movement; it obeys islands, for instance, as shown below for relative clause extraction:

- (49) \* *Wot nit skitap wisokitohas-i* [ *'sami Mali utuhkmin-ti-htit t* ] .  
 this.An that man    heartbroken-1Conj    because M.    date-Recip-3PConj  
 'This is the guy who I'm heartbroken because Mali and *t* are dating each other.'

Incidentally, many relational nouns in Passamaquoddy are formed as participle verbs (relative clauses) on this pattern. For instance, the word meaning 'his/her spouse' is literally 'the one who<sub>1</sub> he/she and *t*<sub>1</sub> are a couple':

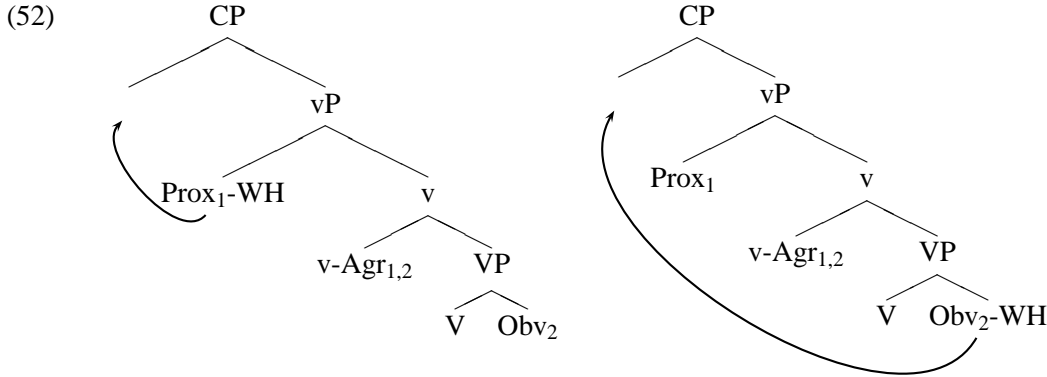
- (50) *nisu-wi-htic-il*  
 two-be-3PConj-PartObv  
 'his/her spouse' (literally, 'the one who<sub>1</sub> he/she and *t*<sub>1</sub> are a couple')

A text example is what is translated as 'enemy' in the following:

- (51) **'-Keskuhtehq-a-l**        *elomi-pusi-li-c-il*        *Mociyehsw-ol, kci*  
 3-come.upon-Dir-Obv IC.away-leave.by.boat-ObvS-3Conj-PartObv M.-Obv        great  
**nacitaham-ti-htic-il,**        *naka Koluskap '-siwiyi.*  
 hate-Recip-3PConj-PartObv and K.        3-relative.ObvP  
 'He comes upon Mociyehs, the partridge, his great enemy, pushing off with Koluskap's relatives.'  
 (Mitchell 1921/1976b, 7)

This is literally ‘he<sub>1</sub> comes upon [the great [one who<sub>2</sub> he<sub>1</sub> and t<sub>2</sub> hate each other<sub>1,2</sub>]].’

It is easy to see how the current theory allows extraction of either of the two NPs in this construction to the exclusion of the other. The two NPs are distinct arguments in this theory, so it is no surprise that either one can be extracted without the other, even though the verb agrees with both of them as a single argument. If just one of them has a wh-feature (say), and the other does not, the latter will be ignored in extracting the former:



Two NPs only interfere with each other in extraction if they both bear the feature that is relevant to the extraction. (If Chomsky 2000 is correct that extraction of the object involves a first step of movement to a second specifier of vP, then the tree above should be amended accordingly.)

In summary, the theory of split coordination proposed here, which generates the two NPs in distinct syntactic positions, accounts naturally for their ability to be extracted singly.

### 3.3 Conclusion: Split Coordination

Quite generally, verbs may project NPs as arguments in phrase structure. I have proposed that Passamaquoddy can project an NP as sister to a verb that does not take a semantic argument. This violates the Projection Principle of Chomsky (1981) and much subsequent work, but it does not violate the Principle of Full Interpretation (Chomsky 1993), provided that there is some way to interpret this NP. I have proposed a mechanism to do that: Agree with v, plus a type-shifting rule for multiple specifiers or multiple Agree operations:  $\lambda x.f(x) \mapsto \lambda x.\lambda y.f(\{x,y\})$ . If this is correct, we should see this rule in other areas of syntax, such as in multiple nominative constructions, multiple wh-movement, and other instances of multiple Agree, but I leave this to future research.

I have tried to show that this theory accounts for all of the facts of split coordination: the complicated transitivity restrictions, word order, obviation, the agreement, and extraction. To the extent that it is successful, the theory is supported, providing evidence for a less restrictive Principle of Full Interpretation and against the original Projection Principle.

I turn now to one other case of a discrepancy between projection and selection, *raising to object* constructions in Passamaquoddy. This case, too, will make use of Function Application via Agree; but in this case, a verb will select an argument but not project it.

## 4 Raising to Object

Many languages have been documented as possessing a process that raises an NP to object position out of what is demonstrably a finite clause (see, e.g., Massam 1985). Passamaquoddy is one such language. In this language an NP from a lower clause can raise across even an embedded wh-phrase, to a position where it agrees with the higher verb, as in (53):

- (53) Ma=te n-wewitaham-a-wiy-ik **mahtoqehsuw-ok** tama al n-toli-putoma-n-ok  
 Neg=Emph 1-remember-Dir-Neg-3P rabbit-3P where Uncertain 1-there-lose-N-3P  
 kcihku-k.  
 forest-Loc

‘I don’t remember about the rabbits<sub>1</sub> where in the forest I lost *t*<sub>1</sub>.’

I translate such *raising to object* sentences as ‘V about NP<sub>1</sub> ... *t*<sub>1</sub>’ to try to capture the intuitive semantics (see section 4.2.2 below) as well as the syntax of these constructions.

Passamaquoddy is a wh-movement language, where wh-words generally have to be initial in the clause where they take scope. So the raised NP in the above example has crossed at least a CP boundary. (To avoid biasing the presentation at this point, I put a box around material in CP rather than draw brackets.) Hence an Exceptional Case-Marking (ECM) type of analysis like that of Chomsky (1981), where the agreeing/case-marked NP remains in an argument position inside the lower clause, is untenable.

In Bruening (2001, ch.5), I argued that this raising is definitely movement, since it obeys islands and permits reconstruction for variable binding; but the movement does not carry the raising NP into the higher clause. Instead it gets just to the edge of CP, where it is close enough to Agree with the higher verb. (In the above example it moves to a second specifier of CP.) I argue here that this particular syntax follows from a mismatch between the syntax and the semantics of raising-to-object verbs: semantically they take an individual argument (type ⟨e⟩) and a property argument (type ⟨e,t⟩), and attribute the property to the individual, but syntactically they project only a CP. An NP from within the CP must therefore raise to Spec-CP to abstract over CP, creating a property. The verb takes this property as its first argument, and then takes the raised NP as its second argument, via Agree.

First I recapitulate the arguments that raising to object is movement to the edge of CP, and then I go through this new “mismatch” analysis in detail. Finally, I show that a similar analysis might help to explain ECM and raising constructions in English and other languages, as well. If this analysis is correct, it argues, as did the split coordination construction of the previous section, that projection and selection do not always line up; Function Application can take place via Agree, satisfying the Principle of Full Interpretation.

#### 4.1 Movement to the CP Edge

Raising to object can be long-distance in Passamaquoddy:<sup>8</sup>

- (54) Ma=te n-wewitaham-a-wiy-**ik niktok wasis-ok** [<sub>CP</sub> wen ih-it [<sub>CP</sub> *t*  
 Neg=Emph 1-remember-Dir-Neg-3P those.An child-3P who tell-1ConjInv  
 kisi-komutonatomu-htit nit atomupil] ] .  
 Perf-steal-3PConj that.Inan car  
 ‘I don’t remember about those kids<sub>1</sub> who told me that *t*<sub>1</sub> stole the car.’

But it cannot take place out of a syntactic island. In the following examples, for instance, an NP within the immediately embedded clause can raise, but one from within an adjunct to that clause cannot (the Adjunct Island Constraint of Ross 1967):

- (55) a. N-piluwitaham-a **not skitap** nipa-kotunke [ eci kukec oli-ya-t Kehlis-k ] .  
 1-suspect-Dir that.An man night-hunt.3 when warden there-go-3Conj Calais-Loc  
 ‘I suspect of that man<sub>1</sub> that *t*<sub>1</sub> poaches when the warden goes to Calais.’  
 b. \*N-piluwitaham-a **kukec** eli not skitap nipa-kotunke [ eci *t* oli-ya-t Kehlis-k ] .  
 1-suspect-Dir warden C that.An man night-hunt.3 when there-go-3Conj Calais-Loc  
 ‘I suspect of the warden<sub>1</sub> that that man poaches when *t*<sub>1</sub> goes to Calais.’

Raising out of a complex NP is also ungrammatical (the Complex NP Constraint of Ross 1967):

- (56) a. Kosiciy-**ul** kis-ankuweht-**uwon** [<sub>NP</sub> atomupil-ol Piyel naka Susehp mil-osk-opon-il] .  
 know-1/2 Perf-sell-2Conj car-InanP P. and S. give-2ConjInv-Pret-PartInanP  
 ‘I know about you<sub>1</sub> that *t*<sub>1</sub> sold the cars Piyel and Susehp gave you.’

<sup>8</sup>In Bruening (2001) I claimed that it could not, but subsequently found that it could, as in this example.



- b. \*N-kosiciy-**a-k Piyel naka Susehp** kis-ankuweht-uwon [<sub>NP</sub> atomupil-ol *t*  
 1-know-Dir-3P P. and S. Perf-sell-2Conj car-InanP  
 mil-osk-opon-il ] .  
 give-2ConjInv-Pret-PartInanP  
 ‘I know about *Piyel and Susehp*<sub>1</sub> that you sold the cars *t*<sub>1</sub> gave you.’

In addition, the raised NP can reconstruct for variable binding, as in the following example:

- (57) N-kosiciy-a **nisuwihtic-il** eli *psi=te wen* koseloma-t *t*.  
 1-know-Dir 3.spouse-Obv C everyone love-3Conj  
 ‘I know about his<sub>1</sub> spouse that everyone<sub>1</sub> loves *t*.’

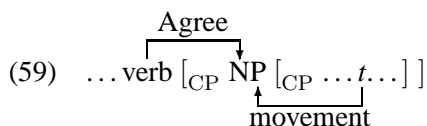
These facts, and others in Bruening (2001, ch.5), argue that raising to object involves movement of an NP from within the complement CP to a higher position.

However, the position that the NP moves to is apparently not a position within the higher clause. Second-position clitics, for example, treat the moved NP as the first element of the lower clause.<sup>9</sup>

- (58) a. N-kosiciy-a Susehp **oc** eli *t* monuw-a-t nuhu akom.  
 1-know-Dir S. Fut C buy-Dir-3Conj three.ObvP snowshoe.ObvP  
 ‘I know about Susehp<sub>1</sub> that *t*<sub>1</sub> will buy three snowshoes.’  
 b. Espons ’-kocicihtu-n eli=**hc** opos kipiya-t, ...  
 E. 3-know-N C=Fut tree fall.over-3Conj  
 ‘Espons knows that the tree will fall, ...’ (Mitchell 1921/1976a, 8)

In (58a), the future clitic *oc* follows the raised NP *Susehp*, but in (58b), where no NP has raised and the higher verb is in its non-agreeing form (see Bruening 2001 and section 4.2 below), this clitic follows the complementizer *eli* (its phonological form also changes, irrelevantly). In (58a) the clitic does not follow the complementizer as in (58b). If the raised NP were part of the higher clause, it should be ignored for the placement of the clitic in the lower clause, giving the placement in (58b). Instead it is treated as the first element of the lower clause.

Similarly, word order, clefting, and fronting treat the NP as part of the lower clause (see Bruening 2001, ch.5). I propose that the NP moves to a specifier of the lower CP. If the CP is a *wh*-question and already has a specifier, it moves to a second specifier of CP. In the Agree theory of Chomsky (2000), in this position the NP is local enough to the matrix verb that the verb can Agree with it:



This instance of Agree will be crucial in interpreting raising to object structures. Just like in split coordination, Function Application will take place through this operation of Agree. (Note that, because this is a specifier and not an adjoined position, Agree is allowed by principle (27b) above.)

## 4.2 Analysis: A Mismatch between Syntax and Semantics

I propose that this rather peculiar syntax follows from the semantics of raising-to-object verbs. All such verbs have two forms, one that agrees with an NP from the lower clause, and one that does not. The agreeing forms were illustrated above; an example of the non-agreeing form appear in (58b) above, and another appears below. In these cases, the verb simply takes a propositional complement:

<sup>9</sup>I do not include judgements of ungrammatical placement of these clitics, as informants will generally assent to any position. In production, however, they are very consistent in where the second-position clitics appear.

- (60) Not olu n-ikuwoss, ma=te 'kosiht-uw-on eli toli motewolonuwihponol-ut.  
 that.An Emph 1-mother, Neg=Emph 3-know-Neg-N C Prog curse-Indef/3Conj  
 '[As for my mother,] . . . she didn't know that she was being cursed.' (Newell 1979, 13)

In the agreeing case, the verb seems to take an NP argument as well as a proposition argument in agreement, but not in other respects: it apparently does not project an object in the higher clause. Instead it has to find its object from within its complement clause. I suggest that there is a mismatch between the syntax and semantics in this case. The verb 'know' in Passamaquoddy, *kosiht-* (non-agreeing) and *kosiciy-* (agreeing), will have the following two denotations:

- (61) a.  $[[kosiht-]] = \lambda p.\lambda x.\lambda w.$ for all  $w'$  compatible with what  $x$  knows in  $w$ ,  $p(w')$ .  
*non-agreeing*  
 b.  $[[kosiciy-]] = \lambda P.\lambda x.\lambda y.\lambda w.$ for all  $w'$  compatible with what  $y$  knows in  $w$ ,  $P(x)(w')$ .  
*agreeing*

The non-agreeing form simply takes a proposition as its argument, and says that this proposition holds in all worlds that are consistent with what the subject knows in the actual world. The denotation of the agreeing verb is similar to what Chierchia (1989) proposes for attitudes *de se*: it ascribes a property to an individual. In attitudes *de se*, the individual is the attitude-bearer; here, it is a different individual. As can be seen, agreeing 'know' takes a property and an individual argument, and ascribes the property to the individual. That is, it says that in all worlds compatible with what the subject knows in the actual world, the property holds of an individual (distinct from the subject).

There is a mismatch with the syntax, however. I suggest that the agreeing form projects only a complement clause, just like non-agreeing 'know' does. (I suggest in section 4.3 below that this is true of ECM and raising verbs as well: they always just project a clausal argument.) The syntax of raising-to-object sentences arises from the necessity of fixing this mismatch between the semantics and the projected syntax.

Before showing how this works, a word must be said about how these denotations are compatible with the view of external arguments adopted above in dealing with split coordination. Note that the external arguments in these denotations, the one whose knowledge is at issue, has to be an argument of the verb. There is no way to give a denotation for the verb without introducing the knowledge-bearer. I therefore propose that the denotations given above are the result of a special composition of  $V$  and  $v$ . That is,  $V$  and  $v$  compose lexically to produce the above denotations; in the syntax,  $V$  necessarily moves to  $v$ . This is only true of attitude verbs of this sort; in the general case,  $v$  and  $V$  combine compositionally, as was described above. This special composition of  $V$  and  $v$  is also important for the agreement: the raised NP will be Agreeing with  $v$ , as was described above for split coordination, but by doing so it will combine via Function Application with the complex  $V+v$ , supplying the first individual argument ( $x$ ) in the agreeing case. See the tree in (63) below. (It is no accident, then, that raising to object and ECM verbs are all attitude verbs.)

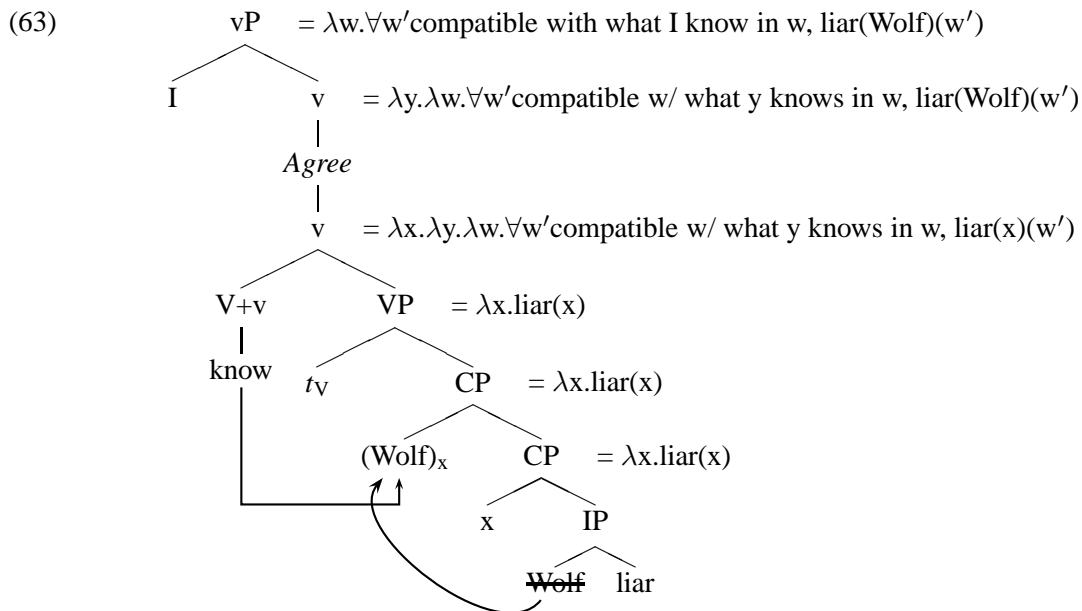
#### 4.2.1 Movement and Abstraction

In the denotation of a raising to object verb in (61b) above, the verb (actually,  $V+v$ ) takes a property as its first argument, an individual as its second argument, and then another individual as its third argument. However, I propose that it is just like its non-agreeing counterpart in always projecting a CP in the syntax. Hence, there is a mismatch between the semantics and the syntax of raising to object verbs. This mismatch must be resolved in order to satisfy the Principle of Full Interpretation.

First, movement of the NP to a specifier of CP abstracts over the proposition denoted by CP, creating a property. (In the embedded clauses in the trees below I simplify from the treatment of VPs and vPs as involving event arguments; properly spelled out, they should be like those in the treatment of split coordination above). Normally this property would immediately take the moved NP as its argument, returning a proposition again, but in this case the mismatch forces the head of the chain not to combine with CP, leaving the CP an open property, a suitable argument for the higher verb. I indicate this lack of combination in the tree below with parentheses (the trace of the

moved NP is indicated with a strikethrough). The verb (actually,  $v$ , which has combined with the verb) is then able to Agree with the NP adjoined to CP. As proposed above, Agree can act as a means of argument-taking, reflected in the semantics as Function Application. So ‘know’ takes CP, a property, as its first argument, and then the moved NP, via Agree, as its second argument:

- (62) Kenoq n-kosiciy-a Malsom eci tawi-koluski-t.  
 however 1-know-Dir Wolf very good.at-lie-3Conj  
 ‘But I do know about Wolf<sub>1</sub> that  $t_1$  is a big liar.’



After the property combines with the verb (V+v), and the raised NP combines with the verb (V+v) via Agree, and then the subject combines with it, the sentence ends up meaning that, in all worlds consistent with what I know in the actual world, the property of being a liar is true of Wolf.

Note that the lowest link in the movement chain is interpreted as a trace, hence the strikethrough. If we adopt Fox’s (1999) trace conversion convention, where a trace is interpreted as a definite description, reconstruction in examples like (57) becomes a straightforward matter. Adopting the trace conversion convention, the property in the tree above is actually  $\lambda x.liar(\text{the individual identical to } x)$ . In the reconstruction case in (57), it is  $\lambda x.\forall y.person(y)\rightarrow love(y, \text{the spouse of } y \text{ identical to } x)$ . (Note that I am abstracting away from event arguments again.)

This theory therefore derives the necessity of movement in raising-to-object, since that is what turns the proposition into a property; and it also derives the possibility of reconstruction of the moved NP, given the trace conversion convention. It also captures the fact that the NP is not a syntactic argument of the higher clause, despite agreeing as an object. It also captures the interpretation of raising to object constructions, as discussed in the next section.

#### 4.2.2 The Interpretation of Raising to Object

The interpretation of raising to object constructions has proven to be quite elusive. They are usually claimed to involve some kind of topicality or vague “aboutness,” with raising to object sentences often translated as something like ‘Mary knows about John that he...’ (and this is how I translated them above). However, no one has actually been able to pinpoint what their semantics is. According to Frantz (1978, 96), raising to object is “more likely [than using the non-agreeing form of the verb] if the complement is emotive.” But that is the most explicit statement I have been able to find about their semantics.

It is important to rule out some possibilities immediately. The raised NP is not, or need not be, a topic within the lower clause (such that it would raise to a designated topic position, like Spec-TopicP, for instance). For one thing, elements that could not be topics, such as wh-words, may agree with raising to object verbs:

- (64) N-koti-ksociy-a **wen** temhuwe-t.  
 1-want-know-Dir who IC.win-3Conj  
 ‘I want to know who won.’

The verb here is in its agreeing form, indicating a third person singular object. The only NP that qualifies is the *wh*-word. Nonreferential quantifiers, which cannot appear in left-dislocated topic positions, are also fine in the raising to object construction (Bruening 2001, ch.5). It follows that the raised NP is not always a topic in the lower clause.

The raised NP can also be focused, but it does not need to be. In (65a), the raised NP has a particle *tehpū*, ‘only’, that associates with focus; but in (65b), this particle is associated with some other NP:

- (65) a. N-kosiciy-a **tehpū Susehp** oc menuw-a-c-ihī nuhu akom.  
 1-know-Dir only S. Fut IC.buy-Dir-3Conj-ObvP three.ObvP snowshoe.ObvP  
 ‘I know that only SUSEHP would buy three snowshoes.’  
 b. Kosiciy-**ul** *tehpū nik ehpic-ik musal-oc-ik*.  
 (2)-know-1/2 only those.3P woman-3P like-2Conj-3P  
 ‘I know about you<sub>1</sub> that *t*<sub>1</sub> only like THOSE WOMEN.’

In other words, the raised NP is completely neutral with regard to discourse functions: it can but need not be a topic; and it can but need not be focused. Any analysis of raising to object will have to capture this fact.

The current analysis does this. In this analysis, what raising to object verbs do is attribute a property to the NP. This successfully captures the intuition of “aboutness” that people have expressed about this construction. In a sentence like (65b), what I know is that you have the property of liking only those women. In other words, I attribute to you a property. This is compatible with the raised NP also being a focus, either new information or a contrastive element, or also being old information (a topic). The relevant property of raising to object verbs is simply attribution of a property.

I discuss this a little more in the next section, where I suggest that this same analysis can carry over to ECM and raising to subject constructions in English and other languages.

### 4.3 Extension: ECM and Raising to Subject?

Suppose we were to extend this same analysis to ECM sentences in English. Then a sentence like that in (66a) would have the semantics given in (66b):

- (66) a. Mary expects Bill to leave.  
 b.  $\lambda w.\forall w'$  compatible with what Mary expects in *w*, *leave*(Bill)(*w'*)

Once again, the particular syntax of ECM constructions would arise from a mismatch between the semantics of the verb and its syntactic projection. The verb would take a property argument and two individual arguments, exactly as in the analysis of Passamaquoddy above. But it would only project a single clausal argument. In English, ECM verbs can all project either full, finite CPs, or non-finite IPs:

- (67) a. Mary expects that Bill will leave.  
 b. Mary expects Bill to leave.

But projection is uniformly just a clause. I suggest that, universally, this is true; verbs of this type only ever project a clausal argument. It follows that if the *expect* is chosen that attributes a property to an individual, an NP from within the lower clause must move, abstracting over the clause, exactly as in the analysis of Passamaquoddy above. (For some reason only the subject can move in English, whereas any argument can in Passamaquoddy; and movement can only take place out of a non-finite clause in English, but it can cross a finite clause in Passamaquoddy. I do not attempt to explain these contrasts between the two languages here.) I take the evidence from adverb placement (Postal 1974) to indicate that the NP does in fact move overtly:

- (68) a. I believe Tony very strongly to be honest.  
 b. \*I believe very strongly Tony to be honest.

If this analysis is correct, it means that the raised NP in English is in fact a semantic argument of the verb, contra most published work on ECM. The truth value equivalence of active and passive sentences observed with ECM (Chomsky 1965, Rosenbaum 1967) is often taken to indicate that the raised NP is not a semantic argument of the verb at all:

- (69) (Postal 1974, 260–1)  
 a. Jim believed the nurse to have moved the patient.  
 b. Jim believed the patient to have been moved by the nurse.

That is, as far as truth-value determination is concerned, (69a–b) do not differ (if one is true, the other is as well).

But note that this is true in the current analysis as well. Attributing the property of having moved the patient to the nurse, and attributing the property of having been moved by the nurse to the patient, are truth-conditionally non-distinct. Jim’s beliefs are correct in either case if and only if the nurse did in fact move the patient. There is a subtle difference, however, one which native speakers are generally able to feel but unable to articulate. For instance, students in my introductory syntax classes always express the opinion that these two sentences mean different things, but they are unable to say how they differ. The difference in the current analysis is who the property is attributed to. In (69a), Jim attributes a property to the nurse. In (69b), Jim attributes a property to the patient. I submit that this is exactly the semantics of ECM constructions, and that this analysis successfully captures the intuitions that native speakers have about them.

We might attempt to give a similar analysis for raising to subject. A verb like *seems* might have the following denotation:

- (70)  $seems = \lambda P.\lambda x.\lambda w.\forall w'/compatible\ with\ the\ apparent\ state\ of\ affairs\ in\ w,\ P(x)(w')$

A raising construction like the following would then attribute a property to the NP that has raised:

- (71) a. Tom seems to be a fool.  
 b.  $\lambda w.\forall w'/compatible\ with\ the\ apparent\ state\ of\ affairs\ in\ w,\ fool(Tom)(w')$

That is, it appears to be the case that Tom has the property of being a fool.

Once again, contra most work on raising to subject, the raised NP is a semantic argument of the verb. I believe this has the potential to explain some of Postal’s (1974, 356–368; 2004, 104–107) remarks on semantic differences in raising constructions (Postal is one of the few that question the complete semantic vacuity of raising). For instance, Postal (2004, 106) presents the following pair:

- (72) a. Joseph Stalin seemed to me to be an evil monster.  
 b. It seemed to me that Joseph Stalin was an evil monster.

Postal claims that (72a) is weird if the speaker has never met Stalin, while (72b) is fine in that context. That is, he claims that raising requires direct evidence.

While I do not completely agree with this assessment, I do agree with the intuition that raising is not semantically vacuous. What raising does in the current analysis is attribute a property to an individual. Attributing a property to an individual might most naturally assume some kind of direct experience with the individual, but one can imagine contexts where this would not be necessary (reading his diary, say). The non-raising counterpart in (72b), on the other hand, simply says that a proposition appears to be true; the contexts where one could assert that are much wider. This is a very subtle distinction that does not have any effect on truth value. I submit that the theory here is the only one that captures real native speaker judgments regarding the semantics of raising constructions, which are in fact distinct from their non-raising counterparts.

In summary, the theory of raising to object advanced here has the potential to explain properties of ECM and raising to subject constructions as well. While I have not gone into the details of the syntax of these constructions,

given that they have played a huge role in the development of generative syntactic theory, this analysis has far-reaching theoretical implications.<sup>10</sup>

## 5 Conclusion and Consequences

I have presented analyses of a split coordination construction and a raising to object construction in Passamaquoddy. Both have the feature that projection does not match selection. In split coordination, an NP is projected in a position where it is not interpreted. In raising to object, a verb selects two arguments but actually projects only one, which is not the appropriate semantic type. In both cases interpretation proceeds by using syntactic mechanisms: movement and Agree. Function Application can take place via Agree, and it can also be delayed, so that a node need not combine with its sister, so long as the sister can be interpreted later through Agree. This theory is able to explain the rather odd syntactic features of both split coordination and raising to object, and may extend to ECM and raising to subject as well.

Since this theory blatantly violates the Projection Principle, that principle must be wrong. Instead, the less restrictive Principle of Full Interpretation proposed by Chomsky (1993) is more likely to be correct. That principle only requires that all syntactic elements receive a legitimate interpretation. This is true in the theory advanced here. Elements are projected into the syntax in violation of selectional restrictions (and hence the Projection Principle), but they are interpreted correctly.

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<sup>10</sup>One important implication would seem to follow from the theory that Function Application takes place via Agree. This might be claimed to have the result that the individual that the property is attributed to in an expletive construction is *not* the raised one, but the one that agrees with the raising verb:

- (i) There seem to me to be **three men** in this room.

Intuitively, however, this is not correct; what such sentences do is assert existence, not attribute a property. The mistake here is in thinking that raising syntax always accompanies the property attribution version of the verb. But notice that that could not be the case: what moves is a semantically vacuous expletive, which would not lead to the correct abstraction to create a property (movement of *there* would not lead to  $\lambda x.x$  is in this room). It seems that the version of *seems* that only takes a proposition argument can also occur with a non-finite clause, giving rise to raising (to satisfy the EPP, say), but without the semantics that accompanies raising with the choice of the property-attributing verb. This is probably what is going on with weather-*it* and idiom chunks, as well (like *it seems to be raining* and *the cat seems to me to be out of the bag*).

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