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Questionable relatives

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In a number of languages, interrogative and relative pronouns show the same forms. The pattern is not distributed evenly around the globe, however: it is concentrated in Europe. It does appear elsewhere, for example in South America in Tariana (in contact with Portuguese), and in Mesoamerica in Nahuatl (in contact with Spanish). It also appears in North America, in Tuscarora, a Northern Iroquoian language.

On the basis of centuries of documentation of European languages, Heine and Kuteva (2006) propose a recurring sequence of extensions which can result in such patterns. A marker begins in lexical gap questions (*Who came*?). It is extended to indefinite subordinate clauses (*I don't know **who** came.*). It is then generalized to definite subordinate clauses (*You also know **who** came.*), sometimes interpreted as headless relative clauses (*You know **the one who** came.*). Finally, it may be extended to headed relative clauses (*Do you know the woman who came?*). Each of these developments could happen spontaneously, but contact could stimulate progress along the path.

Comparisons of 19th century documentation of connected Tuscarora speech with that through the next century reveal the step-by-step development of all of the major interrogative pronouns along this trajectory. The pronouns did not all develop at the same rate, or in the same order as in German or English, but all have now progressed to use in headless relatives. The perfect coincidence of these Tuscarora developments with bilingualism in English adds evidence of the potential effect of contact in stimulating such evolution.

Keywords: Interrogative pronouns; relative pronouns; contact; extension; headless relatives

1. Introduction

In a number of languages, interrogative and relative pronouns show the same forms: *Who came*?; I saw the man [*who came*]. The similarity raises intriguing questions

about the relationship between the two: perhaps some shared fundamental semantic feature, or some recurring diachronic pathway by which one develops into the other. Haspelmath (2001), Heine and Kuteva (2006), and others point out, however, that the pattern is not distributed evenly around the globe: it is highly concentrated in Europe.

The pattern is not entirely nonexistent elsewhere. It occurs in some indigenous languages of the Americas. It has been observed, for example, in South America in Tariana, an Arawakan language of Brazil (Aikhenvald 2002). It has been noted in Mesoamerica in Nahuatl and Pipil, Uto-Aztecan languages (Karttunen 1976; Hill & Hill 1986; Campbell 1987). It also occurs in North America in Iroquoian languages. The examples below are from Tuscarora, a Northern Iroquoian language spoken in the 16th century in what is now North Carolina.

(1) Tuscarora *káhne'* 'who' question: Elton Greene, speaker
Kahné'   weθatkáhri'θ?
who   one told you
'Who told you?'

(2) Tuscarora *káhne'* 'who' relative: Elton Greene, speaker
Thwé:'n   wa'kayę'na'nit'úthahs   ha'   káhne'   kayę'nę'nę́ nhyahr.
all   he put them to sleep   the   who   they are guarding him
'He put to sleep all those who were guarding him.'

Matches also appear in other Iroquoian languages. The examples in (3) and (4) are from Mohawk, spoken in the 16th century in what is now eastern New York State.

(3) Mohawk *nahò:ten'* 'what' question: Sha'tekenhátie' Marian Phillips, speaker
Nahò:ten'   sá:ton?
what   you are saying
'What are you saying?'

(4) Mohawk *nahò:ten'* 'what' relative: Harry Miller, speaker
Takhné:kanont   kati'   kí:ken, ohné:ka'   nahò:ten'   sathrorià:ton.
liquid-serve me then   this   water   what   you are talking about
'Then give me this water that you're talking about.'

The Iroquoian languages differ strikingly in their morphological, syntactic, and discourse structures from those of the European languages famous for interrogative/relative pronoun matches, but they actually have much to contribute to our understanding of the pattern. Here we look more closely at what we can learn from them, with a focus on Tuscarora.

2.   The Iroquoian languages

The genetic relationships among the modern Iroquoian languages for which we have documentation of connected speech are sketched in Figure 1.
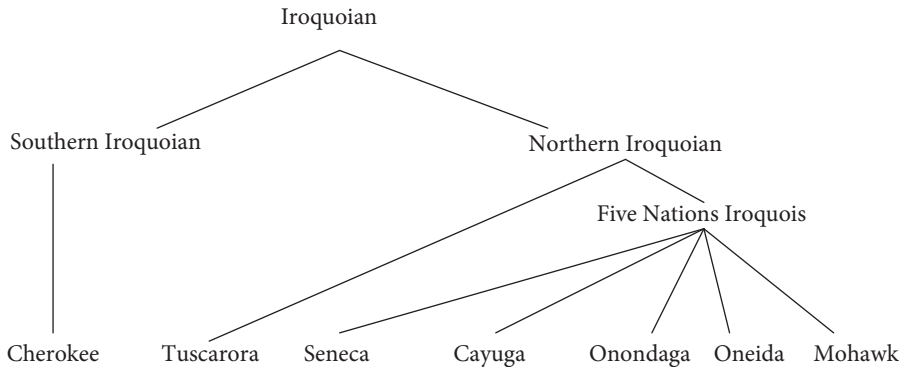
Iroquoian

Southern Iroquoian

Northern Iroquoian

Five Nations Iroquois

Cherokee   Tuscarora   Seneca   Cayuga   Onondaga   Oneida   Mohawk

Figure 1. Genetic relationships among the modern Iroquoian languages

We do not know when the various branches split, but estimates have placed the separation of Southern and Northern Iroquoian at three and a half to four millennia, and that of Tuscarora from the other Northern Iroquoian languages at about two to two and a half (Lounsbury 1961).

The only known representative of the Southern branch is Cherokee. In the 16th century the Cherokee inhabited a wide area of the Southeast, covering parts of what are now Tennessee, North Carolina, Virginia, South Carolina, Georgia, and Alabama. In 1838 most Cherokee were forced to march to Oklahoma, where their descendants live today, though some managed to remain in western North Carolina. The Cherokee language does not show the interrogative/relative match. Relative constructions are formed instead with a subordinating prefix *ji-* and/or a special tonal pattern on the verb marking subordination. There are no relative pronouns.

(5)   Cherokee *káako* 'who' question: Montgomery-Anderson 2008: 478
      <u>*Káako*</u>   *uùtlv́vka?*
      who   3 is sick
      '<u>Who</u> is sick?'

(6)   Cherokee *ji-* relative: Montgomery-Anderson 2008: 132
      Haatlv   naʔ   achúúja   <u>ji-tvvsúúhwisi</u>   aàsoóy v̌.
      Where   that   boy   REL-he.will.paint.SUBOR   fence
      'Where's that boy <u>who</u> will paint the fence?'

(7) Cherokee *kato* 'what' question: Montgomery-Anderson 2008: 481
<u>*Kato*</u>   *uùwáakhthi*?
what   it means
'<u>What</u> does it mean?'

(8) Cherokee *ji-* relative: Montgomery-Anderson 2008: 132
Ahnawo   <u>*ji-skihnéehn v̌.*</u>   *jitheeska*.
Shirt   REL-you.gave.me.flexible.SUBOR   I.am.ironing
'I am ironing the shirt <u>that</u> you gave me.'

Without an interrogative/relative match in Southern Iroquoian there is no evidence that the pattern was present in Proto-Iroquoian. The fact that there are matches between Tuscarora and other Northern languages might at first suggest that the pattern was established by the time of Proto-Northern-Iroquoian. But in most of the languages, only some interrogative and relative pronoun categories match (of the possible human 'who', non-human 'what', place 'where', time 'when', etc.), and the matching categories are not the same from one language to the next. Furthermore, the individual pronouns are not cognate across all of the languages. It is of course possible that all indefinite and relative pronoun categories showed perfect matches in Proto-Northern-Iroquoian, but that various pronouns have been replaced in individual languages. It is more likely that the matches developed more recently in the individual languages.

3.   The transfer of grammar

It is becoming ever clearer that speakers can transfer grammatical patterns from one language to another without actual morphological or lexical substance. Bilinguals can perceive a pattern in one of their languages and replicate it in the other, using only native material. Such a process apparently occurred in Tariana (Aikhenvald 2002: 183, Heine & Kuteva 2005: 3, 2006: 213). Relative clauses were originally formed in Tariana by means of a prefix *ka-*.

(9) Tariana traditional relative clause: Aikhenvald 2002: 183
<u>*ka*</u>-*yeka-kanihị*   *kayu-na*   *na-sape*.
REL-know-DEM.ANIM   thus-REM.P.VIS   3PL-speak
'Those who knew used to talk like this.'

Younger Tariana speakers, bilingual in Brazilian Portuguese, observed that Portuguese relative clauses contain pronouns that match those in questions. The relative pronoun *quem* 'who', for example, has the same shape as the interrogative pronoun 'who?'.

(10)   Portuguese: Aikhenvald 2002: 183
       Quem sabia, falava assim.
       <u>who</u>   new   spoke thus
       'Those who knew spoke like this.'

Younger speakers are now producing the Tariana pattern in (11), simply adding Tariana interrogative pronouns like *kwana* 'who?' to the existing Tariana relative clause structure.

(11)   Tariana innovated relative clause: Aikhenvald 2002: 183
       <u>*kwana*</u> *ka-yeka-kanihị*   *kayu-na*   *na-sape.*
       who   REL-know-DEM.ANIM   thus-REM.P.VIS   3PL-speak
       'Those who knew used to talk like this.'

But the transfer of grammatical patterns can be more complex. Through careful examination of the literature on the development of relative pronouns, Heine and Kuteva (2006) hypothesize that an interrogative/relative pronoun match can develop gradually through a sequence of steps, paraphrased in (12).

(12)   Heine and Kuteva Stages of Grammaticalization: 2006: 209
       Stage 1   The marker begins in lexical gap questions.
                  ***Who** came?*
       Stage 2   The marker is extended to introducing indefinite
                  subordinate clauses
                  *I don't know **who** came.*
       Stage 3   The marker is extended further to definite subordinate clauses.
                  *You also know **who** came.*
                  These structures may be interpreted as headless relative clauses.
                  *You know **the one who** came.*
       Stage 4   The marker is extended still further to headed relative clauses.
                  *Do you know the woman **who** came?*

Each of these developments could happen spontaneously within a single language. Contact, however, could stimulate progress along this path. Speakers might extend the use of a marker in one of their languages to contexts of the next stage, on the model of its counterpart in their other language. As shown by Haspelmath (2001), Heine and Kuteva (2006), and others, interrogative/relative pronoun matches in Europe are in fact not restricted to Indo-European languages. Matches also appear in genetically unrelated languages in the area, among them Basque, Hungarian, Balkan Turkish, and Georgian. Heine and Kuteva discuss a number of individual shifts in specific European languages that were apparently triggered by contact.

Few if any languages indigenous to the Americas are represented by philological records comparable to those for many Romance, Slavic, and Germanic languages.

There is, however, some very pertinent Tuscarora material. At the beginning of the 18th century, most Tuscarora people began leaving North Carolina for the north, eventually settling in western New York State near Niagara Falls, and in southern Ontario on the Grand River Reserve. In 1858 a man named Jonathan Napoleon Brinton Hewitt was born on the Tuscarora reservation in New York to a Tuscarora mother. He learned English as his first language, but acquired Tuscarora from school friends at around age 11. In 1880 he was hired by the Bureau of Ethnology to assist in the documentation of Tuscarora and other Iroquoian languages. Between 1888 and 1897, with the assistance of Lucinda Thompson, a first-language Tuscarora speaker, he collected 36 texts in Tuscarora. The texts have been edited and published in a volume by Blair Rudes and Dorothy Crouse (1987). It is a significant collection, running 621 pages exclusive of appendices. There is also a second body of texts, collected from the mid-20th century to the present, primarily from speakers born near the end of the 19th century. It includes material from speaker David Hewitt collected by A.F.C. Wallace and W. Reyburn in 1948 and 1950; from Nellie Gansworth by Wallace in 1948 and 1949 and by F. G. Lounsbury in 1952 and 1954; from Edith Jonathan in 1950 by Lounsbury; and from Elton Greene through the early 1970's by M. Mithun. More recent material has been provided by speaker Howard Hill to F. Patterson, B. Bissell, and M. Mithun. All of these speakers learned Tuscarora as a first language, then later became fluent in English. Not all of the speakers recorded by Hewitt are identified by name, but for those that are, it has been possible to ascertain their dates of birth through cemetery records and with the help of Wendy Rae Bissell, Tuscarora genealogist. The known speakers represented in the two sets of texts, along with their dates of birth, are listed in (13).

(13)   Identified Tuscarora speakers
        19th century texts
        Joseph Williams   born 1817
        Joseph Henry   born 1840
        Lucinda Thompson   born 1850

        20th century texts
        Nellie Gansworth   born 1884
        Edith Jonathan   born 1886
        Elton Greene   born 1889
        David Hewitt   born 1894
        Howard Hill   born 1923

The relatively short period of documentation available for Tuscarora, little more than a century, provides compelling evidence for exactly the scenario proposed by Heine and Kuteva. Significantly, this period coincides with the spread of

bilingualism in English. After spending the summers of 1948 and 1949 at the Tuscarora reservation in New York State, Anthony F.C. Wallace described the transition from Tuscarora to English.

> The next 80 years – roughly from 1865 to 1948 – saw the consolidation of the economic adjustment so successfully made. Further social integration with the surrounding Whites has been necessary. This has accelerated the decline of the native language and its progressive replacement by English; … the Tuscarora language is now spoken by preference only by the older people, and scarcely at all by the youngsters. (Wallace 1952:16).

The language shift described by Wallace began after the first group of speakers had reached adulthood, but before those in the second were born.

Heine and Kuteva point out that all of the indefinite pronominal markers in a language need not evolve in lockstep; 'each can exhibit a different grammaticalization behavior' (2006:210). Indeed, Tuscarora shows the independent development of individual markers. The next sections examine the evolution of each of the Tuscarora interrogative pronouns: Inanimate *té'* or *tawę́:te* 'what?', Human *káhne'* 'who?', Space *hę̀:we* 'where?', and Time *kahnę́'kye* 'when?'. (Manner, quantity, and attributive questions are based on the Inanimate *té'* 'what?').

4. Tuscarora *té'* 'what'

The Tuscarora interrogative pronoun 'what?' was used in questions in the 19th century essentially as it is today. (Material from earlier sources is presented here in the modern orthography to facilitate comparison. The abbreviation RC stands for the 19th century Hewitt and Thompson material published in Rudes & Crouse 1987.)

(14) 19th century *té'* 'what?' question: 1888 ms 432, RC 1987:590
Te'   *sè:ri?*
what   you want
'<u>What</u> do you want?'

(15) 20th century *té'* 'what?' question: Elton Greene, speaker, p.c. 1971
Té'   *rá:'nę?*
what   he is saying
'<u>What</u> is he saying?'

The particle *té'* 'what?' sometimes appears in the 19th century texts in combination with the word *awę́:te* 'thing(s)', based on the verb root *-ę̀te* 'be a certain one'. Sometimes Hewitt wrote the combination as two words *te' awę́:te*, sometimes as *té'awę́:te* and sometimes as *ta'awę́:te*.

(16) 19th century *té' awę́:te* 'what thing?' question: 1888 ms 422, RC 1987: 429
    <u>*Te'*</u>   *awę́:te* *káha'w*?
    what   thing   it takes
    '<u>What</u> did she take with her?'

(17) 19th century 'what?' question: 1888 ms 432, RC 1987: 12–13
    <u>*Te'awę́:te*</u> *θačhú:ri?*
    what   you have eaten
    '<u>What</u> have you eaten?'

In the modern language, the form *tawę́:te* is pervasive, a longer alternate of *té'* for 'what?'.

(18) 20th century *tawę́:te* 'what?' question: Elton Greene, speaker p.c. 1971
    <u>*Tawę́:te*</u> *weθatkáhri'θ?*
    what   he told you all
    '<u>What</u> did he tell you?'

The use of *te'/tawę́:te* in questions corresponds to Heine and Kuteva's Stage 1, the point of departure.

The 19th century texts also show the use of both *té'* and *tawę́:te* 'what' introducing complements of verbs of speech, cognition, and perception, where the speakers, thinkers, and perceivers do not know the identity of the referents of the complement clauses. These constructions are termed indefinite complements by Heine and Kuteva.

(19) 19th century indefinite complement of speech: Thompson 1888 ms 432:
    RC 1987: 579
    Ha' kayę'na'nę́:'nyu:t *kwęhs akayeyę'nè:rik* <u>*te'*</u> *her ę́'ru' uhtá'kę'.*
    the they invited them not   could the know what also until behind
    'The invitees were unaware of <u>what</u> had transpired previously.'

(20) 19th century indefinite comp of cognition: Joseph Williams, speaker
    1897 ms 411: RC 1987: 357
    Thyá:ryęhst   <u>*ta'awę́:te*</u> *yu'nehá'nę* *węheyę́:či* *hęh.*
    it is not known what   it causes it it died   Q
    'They would be unable to determine <u>what</u> had brought about the person's death.'

(21) 19th century indefinite complement of perception: 1888 ms 432:
    RC 1987: 189
    Ę́:kkę'   <u>*te'*</u>   *awę́:te*   *θkáhews.*
    I will see what thing   it brings back
    'I'll see what she brought back.'

These uses have persisted through the 20th century into the modern language.

(22) 20th century indefinite complement of speech: Nellie Gansworth 1948,
      to Wallace
      Wa'kayę'nahrù:yę' *té'*   *tihra'nyérhahk.*
      they asked   what   he was doing
      'They asked him what he had been doing.'

(23) 20th century indefinite complement of cognition: Elton Greene,
      speaker p.c. 1972
      Šyę'nè:ri   *hę́h* *tawę́:te* *wa'neha'tha'?*
      you know   Q   what   it causes it
      'Do you know what causes it?'

(24) 20th century indefinite complement of perception: Elton Greene,
      speaker p.c. 1972
      Wa'nyę'tkę'θéhre'   *tawę́:te* *hení:kę:.*
      they went to investigate   what   that
      'They went to see what it was.'

Prosodically these constructions constitute a single sentence, with a coherent, descending pitch contour, visible in Figure 2. (The first pitch peak is the stressed syllable *θéh* of the first verb 'they went to see.').

| Wa'nyę'ké'0éhre' | tawę:te | hení:kę:. |
| They went to see | what | that |

0   2.426
Time (s)

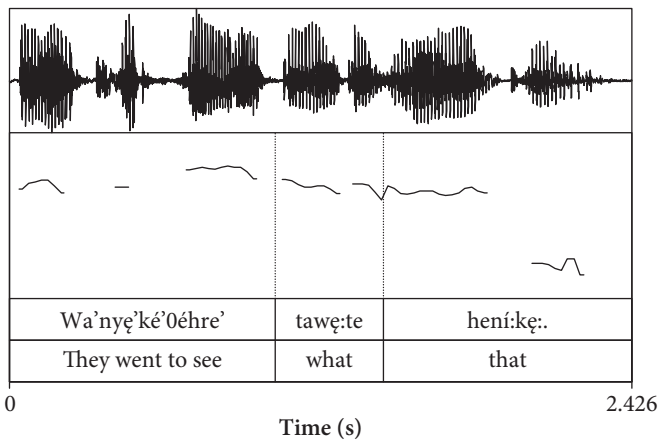**Figure 2.** 'They went to see what it was.'

    These examples correspond to Heine and Kuteva's Stage 2 of development. Various mechanisms can be imagined for the shifts from Stage 1 to 2, most involving sequences of independent sentences as a starting point: 'They asked him. "What was wrong?" '; 'Do you know? What causes it?'. With frequent use, such sequences could become integrated into single constructions.

The marker *té'* does not appear in definite complements in the 19th century texts, where the speakers, thinkers, or perceivers can identify the referent of the complement. This use is frequent in the 20th century, however.

(25) 20th century definite complement of speech: Nellie Gansworth 1948, speaker, to Wallace
Wahratkáhrye' *te'* *thwahrá:'nye'r.*
he told　　　what　he did
'He told them what he had done.'

(26) 20th century definite complement of cognition: Elton Greene speaker p.c. 1972
Kyę'né:ri: <u>*te'*</u> *rayá:θę.*
I know　　what　he is named
'I know <u>what</u> his name is.'

(27) 20th century complement of cognition: Elton Greene, speaker p.c. 1972: 421
Kyę'né:ri: <u>*te'*</u> <u>*ti:wa'θ*</u> *ruhwístayę'.*
I know　　what　so it amounts　he money has
'I know <u>how much</u> money he has.'

These constructions are examples of Heine and Kuteva's Stage 3 of development.

Some sentences with definite complements are potentially ambiguous in a subtle way. The sentence 'I saw what she brought back' could mean either 'I discovered the answer to the question "What did she bring back?"', or 'I saw the object she brought back'. The 'what' clause could be interpreted either as a kind of embedded question or as a headless relative designating a specific referent. Such ambiguity provides a bridge for the extension of the construction to contexts in which it is interpretable only as a headless relative. There is no evidence of the use of *té'* 'what' in headless relatives in the 19th century, but we do see it in the modern language.

(28) 20th century headless relative 'what': Elton Greene, speaker p.c. 1972: 256
Wa'nętíhęhs <u>*tawę́:te*</u> *ęwęnhéhkę.*
it stores　　what　　it will live on
'It is storing <u>what</u> it will live on.'

As referring expressions, the headless relatives can be preceded by the article *ha'*.

(29) 20th century headless relative with article: Elton Greene, speaker p.c. 1972: 326
Ę́ kyekwarihę́:tyę' *kyení:kę:* *kayetá:kre',*
I will teach you　this　　they dwell
'I will teach you, this tribe,

<u>*ha'tawę́:te*</u> *neyawętahwę̨čúhę* *kyení:kę:* *ęθwayę'né:ri:k.*
the what　it is necessary　this　　you all will know
<u>that which</u> it is necessary for you to know.'

(30) 20th century headless relative with article: Elton Greene, speaker
p.c. 1972:186
Nyękwa'tikęhriyúhθe <u>ha'</u> <u>tawę́:te</u, kakurihwíhsę̇.
it is pleasing to us   the   what   they have promised
'We are pleased with <u>what</u> they promised.'

(31) 20th century headless relative with article: Elton Greene, speaker
p.c. 1971:131
Čhę́' kwà:nę wakyehserhá:rę̀ <u>ha'</u> <u>tawę́:te</u> tika'nyé:rhę'.
just   much   it keeps me busy the   what   I do here and there
'The <u>things</u> I do keep me very busy.'

Further extension of the pronoun *té* 'what' into headed relative clauses, Heine and
Kuteva's Stage 4, has not taken place in Tuscarora. The somewhat rare example
below might at first glance be taken as a headed relative clause.

(32) Tuscarora headed relative?: Elton Greene, speaker p.c. 1972:186
Ha' ękayętęhninę́ hek   hé'thu ha'.. ę:
the they will be selling there the uh
'They'll be selling there the

tawę́:te kayakyetì:yahs u'tíkste   tawę́:te hé'thu.
what   they make   beadwork what   there
beadwork they make.'

The prosody of this sentence, visible in Figure 3, indicates that the second line is
actually composed of a series of appositives: 'what they make, beadwork, whatever'.
There is a pause after 'they make' and a pitch reset on the following noun 'beadwork'.

| Ha' ękayętęhninéhek hé'thu ha' | … ę | tawé:te | kayakyeti:yahs | u'tíkste | tawé:te hé'thu. |
| They'll be selling there the | … uh | things | they make | beadwork | things there. |

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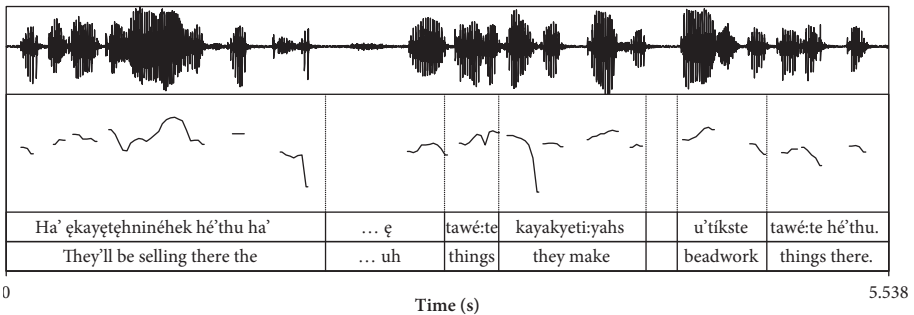**Time (s)**

Figure 3. 'They'll be selling the beadwork they make.'

5. Tuscarora *káhne'* 'who'

The interrogative use of the pronoun *káhne'* 'who?' has remained unchanged over
the past century.

(33) 19th century 'who?' question: Thompson 1888 ms 422, RC 1987: 233
Káhne' ęwásθhara'   kyé:nę: í:kę: raká:θ'a?
who   one will care for this   it is   boy
'<u>Who</u> will care for this boy?'

(34) 20th century 'who?' question: Elton Greene, speaker, p.c. 197
Kahné' weθatkáhri'θ?
who   one told you
'<u>Who</u> told you?'

(35) 20th century 'who?' question: Elton Greene, speaker, p.c., 1971
Kahne' wa'na'natkáhri'θ?
who   one told one
'<u>Who</u> did he tell?'

The same pronoun appears in indefinite complements in the 19th century texts, where the speaker, knower, or perceiver does not have a specific referent in mind, but it is rare.

(36) 19th century indefinite 'who' complement: Hewitt, RC 1987: 50
Í: 'ętkę'tikę́ hnę'   ha' káhne' ęθtí:tya:k.
I   I will decide for you the who   you two will marry
'I will decide for you <u>who</u> you shall marry.'

In the modern language, the pronoun appears robustly in indefinite complements.

(37) 20th century 'who' indefinite complement: Elton Greene, speaker
p.c. 1972: 202
The' a:kyę'nè:ri:k kahne' wa'na'rì:yu'.
not   I know   who   one killed one
'I don't know <u>who</u> killed him.'

(38) 20th century 'who' indefinite complement: Elton Greene, speaker
p.c. 1972: 182
Ìskah wa'kayę́:kkę' káhne' hé'thuh íhre'θ.
not   they saw one   who   there   he is walking around
'They didn't see <u>who</u> was walking there in the crowd.'

(39) 20th century 'who' indefinite complement: Elton Greene, speaker
p.c., 1972: 219
Ę kayerá:ku'   káhne' ha'
they will choose who   the

yęyętkyérhę:ht   nyuhtà:wę́ę.
she will throw her body down there   Falls

'They will choose <u>who</u> will go over the falls.'

These constructions correspond to Heine and Kuteva's Stage 2 of development.

The 19th century material shows no uses of *káhne'* 'who' in definite complement constructions. Definite complements with *káhne'* do appear in the 20th century.

> (40) 20th century 'who' definite complement: Elton Greene, speaker
>   p.c. 1972:412.
>   *ę'né:ri: káhne' wahranęhsá:tya't.*
>   I know who   he house bought
>   'I know <u>who</u> bought the house.'

This construction corresponds to Heine and Kuteva's Stage 3.

The 19th century material also shows no headless relatives containing *káhne'*. They do, however, appear in the modern language.

> (41) 0th century headless 'who' relative: Elton Greene, speaker p.c. 1972:183
>   *'kayę'na'nit'úhthahs   ha' káhne' kayę'nęnę hyar.*
>   caused them to sleep the who   they are guarding him
>   'He put to sleep <u>those who</u> were guarding him.'

There is no evidence of extension of *káhne'* 'who' to Heine and Kuteva's Stage 4, in headed relative clause constructions.

6. Tuscarora *hę̀:we* 'where'

The use of the interrogative pronoun *hę̀:weh* 'where?' in questions shows little change over the past century. (The initial *h* had disappeared from the speech of Elton Greene, but it remains in that of Howard Hill.).

> (42) 19th century *hę̀:we* 'where?' question: 1888 ms 422, RC 1987:437
>   *<u>Hę̀:we</u> ha' ę̀:kwe   tyahwáę́:t?*
>   where   the person there one went
>   '<u>Where</u> did the people go?'

> (43) 20th century *ę̀:we* 'where?' question: Elton Greene, speaker, p.c. 1971
>   *<u>Ę̀:we</u>   nyę́:kye:t?*
>   where   there I shall go
>   '<u>Where</u> shall I go?'

The same marker appears in indefinite complement clauses throughout the record.

(44)   19th century indefinite 'where' complement: Thompson 1889 ms 411,
       RC 1987: 494
       Ęhsahrù:yę' <u>hè:we</u> tikę'rę' ukę ' tì:wa'θ   thuh
       you will ask   where   it sits   or   it is so much   there
       'Ask it to locate for you <u>the place where</u> can be found the greatest numbers of

       ste'awę́:te   ha' θa'neθwé:ki.
       something   the   you want
       whatever kind of game you want.'

(45)   20th century indefinite 'where' complement: David Hewitt, speaker,
       1951: 47 to Wallace
       Ù:nę hésnę: wa'kayenawa'tiyę́:tha' <u>hè:we</u> tikakuhyá'kę.
       now   then   they went to find   where   so they have crossed
       'They went back to find <u>where</u> they had come across.'

(46)   20th century indefinite 'where' complement: Elton Greene, speaker
       p.c. 1973: 479
       Thę́' akyę'né:ri:k   <u>è:weh</u>   tyahwáhse:t.
       not   would I know   where   you went to
       'I don't know <u>where</u> you went.'

These constructions correspond to Heine and Kuteva's Stage 2 of development.
    This particle does not introduce definite complement clauses in the 19th cen-
tury material, but it does in the 20th century.

(47)   20th century definite 'where' complement: Elton Greene, speaker
       p.c. 1972: 183
       Wahrá:kę' <u>è:we</u>   tihrá:tač.
       he saw   where   there he is lying
       'He saw <u>where</u> he was lying.'

(48)   20th century definite 'where' complement: Elton Greene, speaker
       p.c. 1972: 435
       Kyę'né:ri: <u>è:we</u>   nękheyačirá:'nihr.
       I know   where   I will sting him
       'I know <u>where</u> I'll sting him.'

(49)   20th century definite 'where' complement: Howard Hill, speaker to
       Francene Patterson 2000
       Thwé:'n ha' ę́:kwe,   kayeyę'né:ri <u>hè:we</u>,
       all   the   person they know   where
       'All the people know <u>where</u>

       ękayekúhe'   anę́hsnači'.
       they will get   dark seed
       to get sassafras.'

These constructions correspond to Heine and Kuteva's Stage 3 of development.

The modern language shows further extension of this marker to headless relatives designating places: *(h)è̱:we* 'the place where'. These constructions can function either as arguments or, more commonly, as locative adverbial clauses.

(50) 20th century headless 'where' relative: Elton Greene, speaker p.c. 1972: 412
      È̱:we   tihru'nè:nę'   weyúhre: á:thu'.
      where   there he lives   it is amazing   cold
      '<u>Where</u> he lives it's cold.'

(51) 20th century headless 'where' relative: Edith Jonathan, speaker to
      Lounsbury, 1950: 528
      Ù:nę wáę̱'w hé'i' è̱:we   tíktač.
      then it came I   where   I was lying
      'Then it came over to <u>where</u> I was lying.'

(52) 20th century headless 'where' relative: Elton Greene, speaker p.c. 1972: 335
      Hé'thu yękęhá:wi:t   è̱:we   kyení:kę:, unęhráhse.
      there   I will take you there where   this   milk
      'I'll take you there <u>where</u> there's milk [that I drink].'

7.   Tuscarora *kahnę̱'kye* 'when'

The time interrogative is *káhnę* or *kahnę̱'kye* 'when?'. (-*ę̱'kye* is a place nominalizer.)

(53) 19th century 'when' question': Hewitt ms 2895: 125
      Káhnę tičiθarhékwę?
      when   you have gone back
      '<u>When</u> did you go home?'

(54) 20th century 'when' question: Elton Greene, speaker p.c. 1972: 269
      Kahnę̱'kye   nęčhárku'?
      when   so you will go back
      '<u>When</u> are you going home?'

The 19th century texts show no other uses of this marker. It is used in the modern language, however, to introduce complements.

(55) 20th century 'when' complement: Elton Greene, speaker p.c. 1972: 413
      Kyę̱'né:ri: kahnę̱'kye   twahrayę́:thu'.
      I know   when   so he planted
      'I know <u>when</u> he planted.'

This construction corresponds to Heine and Kuteva's Stage 3 of development.

The same marker also appears in the modern language in headless relatives, 'the time when'. These usually function syntactically as temporal adverbial clauses.

(56)   20th century 'when' adverbial clause: Elton Greene, speaker p.c. 1972: 434
　　　Ha' ù:nę kahnę́'kye, … ha' ęki'rwę́ hθę',
　　　the   now   when　　　 the I will tail drop

　　　θehyáhra:k　　　ęθwa'né'ku'.
　　　you all remember   you all will run away

　　　'Now <u>when</u> I drop my tail, remember to run away.'

(57)   20th century 'when' adverbial clause: Howard Hill, speaker to Francene
　　　Patterson 2000
　　　Kahnę́'kye ahskučhè:ni',　　　thwé:'n ęhsne'rawíhsi'.
　　　when　　　 you would find it all　　　 you will root un give
　　　'<u>When</u> you find it, pull out the whole root.'

8.   Progression through the stages

This single century of Tuscarora documentation shows development of each of the indefinite pronouns along the path predicted by Heine and Kuteva. The coincidence of this progress with increasing bilingualism in English suggests stimulation by contact. The pronouns have not progressed in unison, however. Figure 4 provides a summary of the uses of each in the 19th and 20th centuries. (Heine and Kuteva's Stage 3 has been split into two stages here, iii and iv.)

		'what'		'who'		'where'		'when'	
		19th	20th	19th	20th	19th	20th	19th	20th
i	Simple questions	x	x	x	x	x	x	x	x
ii	Indefinite complements	x	x	x	x	x	x	--	x
iii	Definite complements	x	x	--	x	--	x	--	x
iv	Headless relatives	--	x	--	x	--	x	--	x
v	Headed relatives	--	--	--	--	--	--	--	--

Figure 4. Development of Tuscarora Indefinite Pronouns

　　The Tuscarora patterns raise some interesting questions. In the 19th century, the pronouns 'what', 'who', 'where', and 'when' differed in their extensions to new contexts. The indefinite 'what' was already used not only in questions, but also in indefinite and definite complements (i, ii, ii). Human 'who' and locative 'where' were used only in questions and indefinite complements (i, ii). Temporal 'when' was used only in questions (i). By the late 20th century, all had expanded through all steps to headless relatives (i, ii, iii, iv), but none has yet moved into headed relatives (v).

　　One issue taken up by Heine and Kuteva (2006: 226–229) is directionality. Citing Lehmann 1984; Thomason and Kaufman 1988: 320, Schafroth 1993; Matras 1996: 64, Kortmann 1998: 554, Le Goffic & Wang 2002, and Heine and

Kuteva 2002, they write, 'That the polysemy between question and subordination markers that we are concerned with here is the result of a unidirectional process from the former to the latter has been claimed independently by a number of authors' (2006: 226). The Tuscarora situation summarized in Figure 4 provides especially strong evidence for this directionality. All have Stage i as a point of departure (questions), and at each point in time, each pronoun shows only contiguous stages of development.

The fact that the individual Tuscarora pronouns had reached different stages of development by the 19th century raises the question of how universal the order of development among the various indefinite pronouns might be cross-linguistically. Comparisons with sequences discussed by Heine and Kuteva indicate that the order varies.

High German	Stage of development
what, who, when (*was, wer, wann*)	3
where (*wo*)	3–4
English	
What	3
who, when, where, which	4
Tuscarora 19th century	
when (*kahnę́ʼkye*)	1
where, who (*hę́:we, káhnheʼ*)	2
what (*teʼ*)	3

Figure 5. Comparative stages of development

High German *was* 'what', *wer* 'who', and *wann* 'when' have progressed into headless relatives, while *wo* 'where' has expanded one step further into headed relatives but only for some speakers. Thus the German inanimate, human, and time markers are still solidly at Stage 3, and the space marker is somewhere between their 3 and 4 (2006: 210–211). English, *who, where, when* and *which* have completed the path, all now appearing in headed relative clauses, but *what* still has not taken that final step. 'What' expanded first in Tuscarora but last in English.

The differences in rates of development of individual markers within languages, and in the order of development of categories across languages, raise questions about what factors might retard or hasten expansion along this pathway. A well-known frustration is that though we can sometimes point to motivations behind a change once it has happened, we cannot predict whether or not a change will take place when the motivations are present. We can, however, begin to assemble hypotheses about factors that may affect rates of change. The hypotheses

can of course be evaluated only in light of substantial information about many more languages. One inviting direction of inquiry concerns the system in which the innovation takes place, whether the expansion of a marker consists in the simple substitution of one marker for another in an existing structure, or creates a brand new grammatical construction where there was none.

9. Innovations in light of existing structure

Expansion of the more advanced Tuscarora markers 'what' and 'who' created more specific constructions than those that had existed before. Both form complement clauses. The less advanced markers 'where' and 'when' replaced demonstratives in established constructions. These usually serve as adverbial clauses.

9.1 *Té'* 'what'

As shown earlier, the 20th century saw an extension of the indefinite pronoun *té'* 'what' into headless relative clause constructions.

	19th century	20th century
Simple questions	x	x
Indefinite complements	x	x
Definite complements	x	x
Headless relatives	--	x
Headed relatives	--	--

Figure 6. Development of *te'* 'what'

In the 19th century, speakers communicated such ideas with two other constructions.

The most common was simply a juxtaposed finite clause. (Clauses can consist of just a verb, or a verb plus additional material.) The clause is typically preceded by the article *ha'*, which signals both identifiability and the dependent status of the following clause.

(58) 19th century clausal nominal: Joseph Williams, speaker 1888, Hewitt in RC 382

Há:ne:' nęká:ye:'r ha' tyurihú'nę:.
that   it will happen   the it is customary
'<u>What is customary</u> must take place.'

(59) 19th century clausal nominal: 1888 ms 432, RC 160
  Wahrakyéhrę’ ha’ θhrahà:wi’.
  he put up   the   he carries back
  ‘He set out <u>what he had brought back</u>.’

This construction continues in the modern language, though it is less frequent. Many of the verbs now used in this way are lexicalized as referring expressions.

(60) 20th century lexicalized clause: Elton Greene, speaker p.c. 1972:329
  Wahrá:kę’ hésnę: ká’θre’.
  he saw   then   it drags
  ‘Then he saw a <u>wagon</u>.’

The 19th century juxtaposed clause, even with an article and prosody that probably linked it to an adjacent clause, was more general in its grammatical function, indicating dependency but not specifying a particular semantic or grammatical role.

In the 19th century, such clauses sometimes occurred in apposition to the word *awę́:te* ‘thing(s)’.

(61) 19th century ‘the things’: 1897 ms 411, RC 1987:359
  Wa’thrathnyaré:tya’t ha̖awę́:te   wahrá:kę’.
  he news spread   the thing   he saw
  ‘He reported <u>what</u> he had seen.’

(62) 19th century ‘the things’: 1888 ms 432, RC 1987:603
  Ù:nę wa’na’natkáhri’θ ha̖awę́:te   katíhu’θ yétkwakęw…
  now   she told her   the things   it exists   ..her stomach interior
  ‘She told her <u>what</u> was living in her stomach, [many hundreds of snakes].’

By the 20th century, the word *awę́:te* ‘thing(s)’ had generally been replaced by the indefinite pronoun *tawę́:te* ‘what’ in the headless relative constructions seen earlier.

(30) 20th century headless ‘what’ relative: Elton Greene, speaker p.c. 1972:186
  Nyękwa’tikęhriyúhθe ha’ tawę́:te,   kakurihwíhsę̀.
  it is pleasing to us   the   what   they have promised
  ‘We are pleased with <u>what</u> they promised.’

In the modern language, headless relatives based on *tawę́:te* ‘what’ are now the majority pattern.

The innovated ‘what’ headless relative construction ‘what they promised’ in (30) could be viewed as the result of adding *tawę́:te* ‘what’ to existing clausal constructions like that in (58) ‘what is customary’. It could also be viewed as the replacement of the nominal *awę́:te* ‘thing(s)’ with the new indefinite pronoun *tawę́:te* ‘what’ and expansion to a majority pattern.

In German and English, interrogative pronouns have replaced demonstrative pronouns in complement and relative constructions. A few Tuscarora examples might suggest that the similar subordinate constructions existed in Tuscarora, such as that below.

(63)   Demonstrative construction: Edith Jonathan 1950 to Lounsbury MM 522
Ȅ:ruh   yękhiya'tkahríθe   ha'   kę́'   nyękwa'nè:nę'
she   she was telling us   the   where   so we reside

hení:kę: _tyakuyéhsawę_.
that   so it happened to her
'She was telling us at home <u>what happened to her</u>.'

When we examine further data we see that this is actually a different kind of construction. Demonstrative pronouns *kyení:kę* 'this one, these' and *hení:kę*:'that one, those' are frequent in Tuscarora speech. They occur especially often at the ends of simple sentences, as below. We can see from the pitch trace and waveform in Figure 7 that both demonstratives *hení:kę*:'that one, those' were grouped prosodically with the preceding clause. Both showed a final fall in pitch, followed by a pause, then a pitch reset on the following clause.

(64)   Demonstrative construction: Elton Greene, speaker p.c. 1972:257
Wahękhę́hsyę'   *hení:kę*:.
I heard   that.
'I heard that

Nahrakwa'nętí:ye:t hé:snę:,   ękáhnę't   hení:kę:.
he sent me here   hence   I will destroy those
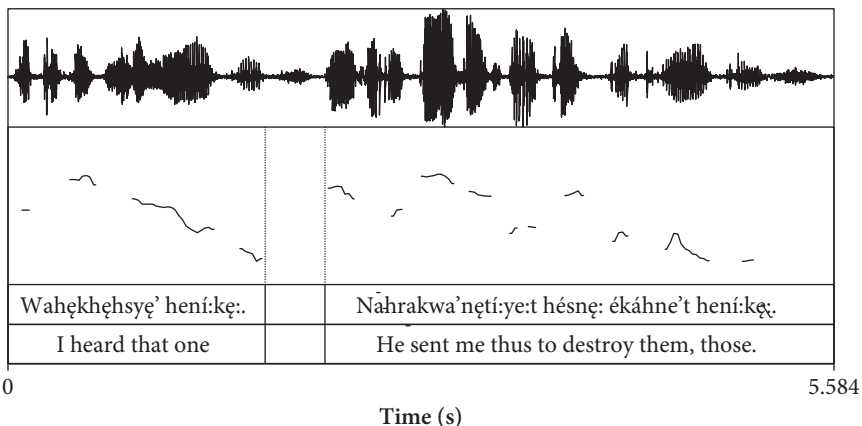He sent me to destroy them, those things.'

Figure 7. 'I heard it, that thing. He sent me to destroy them, those things'

Sound recordings are not available for the sentence in (63), but we do have recordings of similar constructions. The prosody indicates that these consist of a sequence of referring expressions in apposition, rather than a single relative clause.

(65)   Demonstrative construction with prosody: Elton Greene, speaker
p.c. 1972: 258
Wa'tkaháhihθ hení:kę̣:,   ruya'kwáher.
it met it   that one   he body carries
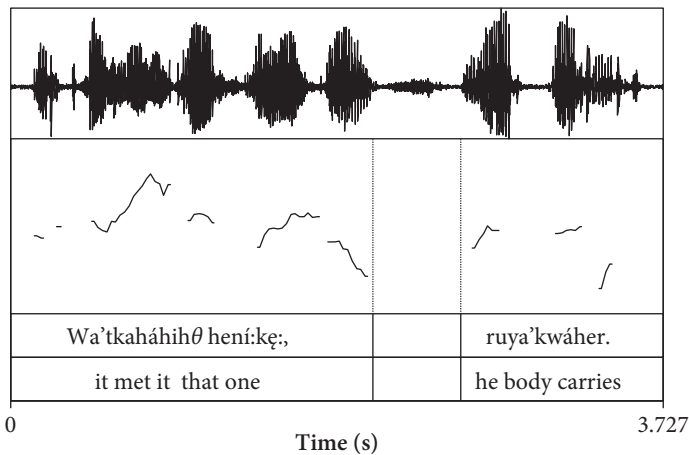'It met it, that one, a dinosaur.'

Figure 8. 'It met it, that one, a dinosaur'

The headless relative constructions such as 'what they promised' and 'what happened to her' did not develop as in German and English, through the substitution of an interrogative pronoun for a demonstrative in an existing relative construction. There was no relative construction, rather only a general dependent clause structure. The extension of *té'* produced a more specific construction.

9.2   *Káhne'* 'who'

The 19th century material shows no uses of *káhne'* in definite complements or headless relatives.

Ideas translated with English definite complements were conveyed with a simple Tuscarora finite clause, without overt nominalization, an indefinite pronoun, or complementizer. The clause was usually preceded by the article *ha'*, which also served to mark its dependent status.

	19th century	20th century
Simple questions	x	x
Indefinite complements	x	x
Definite complements	--	x
Headless relatives	--	x
Headed relatives	--	--

Figure 9. Development of *káhne'* 'who'

(66)   19th century absence of 'who' in definite complement: 1888 ms 432,
       RC 1987: 193
       Ruyę̀'nè:rih ha' ranę́:nę   tíhsnę' runę́ sne'.
       it knows   the he feeds it and   it loves him
       'It knew [who he was and loved him for having fed it].'

Ideas translated with headless relatives were also conveyed by simple clauses with-
out an indefinite pronoun, also usually with the article *ha'*. This was a major con-
struction in the 19th century, occurring pervasively in the texts.

(67)   19th century headless relative: Hewitt ms 433, RC 1987: 40–41
       Ha' hé'thu kayetá:kre' kwę́ hs   akayaiheyę́hθek.
       the   there   they dwell   not   would they die
       'They who dwelt there did not die.'

(68)   19th century headless relative: Joseph Williams to Hewitt 1888 ms
       438, RC 412
       Ru'ríhę:t   rahęwúhahs   ranęwęthúhtha'
       he has as his business   he sinks boats   he causes to drown

       ha' yera'nawę́:'nye'.
       the   one is going along in water
       'His business was to sink boats and to drown those who were in them.'

This construction persists today, somewhat more robustly than its 'what'
counterpart.

(69)   20th century headless relative: Elton Greene, speaker p.c. 1972: 326
       Nę̨θwa'nęnurę́hkwhek   ha' neθwa'nętyákhę'.
       you all will continue to love each other   the   you all are married
       'Love one another, you who are married couples.'

(70)   Tuscarora headless relative: Howard Hill, speaker, to Francene
       Patterson 2000
       Há:ne:' ha' kakuneha'kę́:ha'nę'   kayę́:'nę.
       that   the   they are old variously   they say
       'That is what the old people say.'

In German and English, as noted in the previous section, interrogative pronouns have been replacing demonstratives in subordinate constructions. In the 19th century Tuscarora material, headless relatives designating animates also occur in apposition to demonstratives.

(71)   19th century apposition to demonstrative: 1888 ms 432, RC 157
Kwę́hs   akakwè:ni'   ęθę'né'ku'
not   was it able   it will escape
'It was not fast enough to escape

ha'   áhkwir   ha'   há:ne:'   θę'né'ku'.
the   doe   the   that   it ran back

the fawn's mother [who had returned in the interim].'

This pattern continues in the modern language.

(72)   20th century apposition to demonstrative: Edith Jonathan, speaker, to Lounsbury 1950: 528
We'eteyú'knę'   hení:kę: kayeta'θá:rye'   kayekętí:θ'a.
she went to them   those   they are lying down   they are small
'She went over to those lying down, the children.'

(73)   20th century apposition to demonstrative: Elton Greene, speaker p.c. 1972: 180
Ękwehè:we,   kyení:kę: kayetá:re'   skarù:rę'.
real persons these   they live here Tuscarora
'The Indians living here were Tuscarora.'

A typical use of demonstratives is below. Without consideration of prosody, this could be interpreted as a relative clause structure: 'the one that was named Obadiah went there.'

(74)   20th century demonstrative structure: Elton Greene, speaker p.c. 1972: 183
Yahwahrárku' <u>kyení:kę:</u>   Čá:ks   rayá:θę.
he went there   this one   Obadiah   he is named

The actual structure is clearer when intonation is brought into the picture. Each line of transcription below represents a separate prosodic phrase.

(75)   20th century passage with demonstrative: Elton Greene, speaker p.c. 1972: 183
Yahwahrárku' <u>kyení:kę:..</u> .   Čá:ks   rayá:θę.   Yahwahrárku'
he went there   this one   Obadiah   he is name   he went there

<u>kyení:kę:..</u> . , ęčę'na'tahskúhči
this one   he will release him

The demonstratives were grouped prosodically with the preceding clause in each case. (The sounds between phrases 2 and 3, and between 3 and 4, are breaths.).
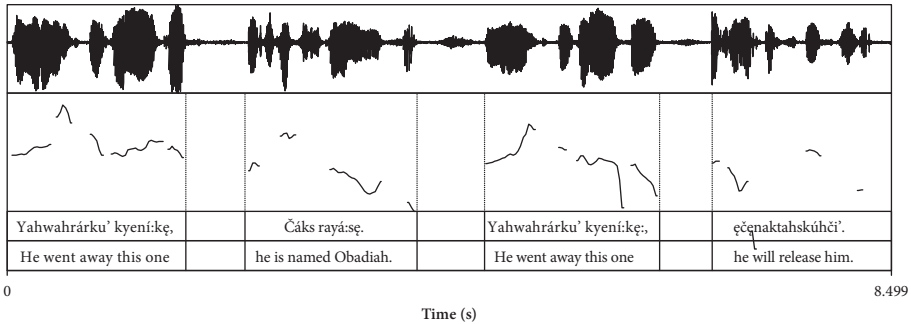

Yahwahrárku' kyení: kę,	Čáks rayá:sę.	Yahwahrárku' kyení:kę:,	ęčęnaktahskúhči'.
He went away this one	he is named Obadiah.	He went away this one	he will release him.

0   8.499

Time (s)

Figure 10. Managing the Flow of Information

The development of the Tuscarora animate definite complements and headless relatives in the 20th century thus does not parallel those in German or English. The pronoun *káhne'* 'who' was added to clauses rather than substituted for a demonstrative in existing complement or relative constructions.

Constructions like that in (74) could of course evolve into relative clauses. Even today, not all sequences of clauses containing demonstratives are separated prosodically by such marked pauses and pitch resets.

Although *té'/tawę́:te* 'what' and *káhne'* 'who' show the same profile in the modern language, both appearing in questions, indefinite complements, definite complements, and headless relatives, they do not show precisely the same degree of development. The *té'/tawę́:te* 'what' complements and headless relative constructions have essentially replaced simple juxtaposed clauses serving comparable functions, but the *káhne'* 'who' complements and headless relatives are relatively rare in the 19th century, and in the modern language, they still coexist with the earlier, less grammaticalized alternatives.

9.3 *Hę̀:we* 'where'

In the 19th century, *hę̀:we* 'where' had just begun to be extended to indefinite complements.

The marker was in competition with a much more robust particle *kę'*. *Kę'* appears in both indefinite and definite complements.

(76)   19th century *kę'* indefinite complement: Thompson 1888 ms 432, RC
        1987:579
        Ù:nę ha' kę'   weθkata'ríheh   wa'kayęnęnhyà:rę'.
        now   the where it puts head back on they examined
        'They sought to find out <u>where</u> the head had been taken to.'

	19th century	20th century
Simple questions	x	x
Indefinite complements	x	x
Definite complements	--	x
Headless relatives	--	x
Headed relatives	--	--

Figure 11. Development of *hè:we* 'when'

(77) 19th century *kę'* definite complement: 1888 ms 422, RC 1987: 438–9
  Ù:nę wahrá:kę' kę' newę́ hryę'.
  now he saw where they two enter dirt
  'He was able to see <u>where</u> the children had escaped through the ground.'

Kę' also appears pervasively in the 19th century in headless relative constructions, meaning 'the place where'.

(78) 19th century *kę'* headless relative: 1888 ms 432, RC 1987: 192–3
  Hé'thu yawáhe:t kę' ru'nihsúhe'.
  there it went there where he has hidden
  'It went over to <u>where</u> the hunter was hiding.'

It occurs in numerous lexical items in the manuscript dictionary compiled by Erminnie Smith and Hewitt (BAE ms 2850), such as *kę' yetakwthráhkhwa'* 'where one-bed-puts.up-with' = 'bed chamber' and *kę' yehyatęhstayę'náhkhwa'* 'where one-paper-lays-with' = 'bookcase, desk' (Rudes 1999: 298–9).

  The particle *kę'* continues in modern Tuscarora, but it is much less frequent and has a narrower sense: 'right where'. It does appear in headless relatives meaning 'exactly the place where', usually functioning as a locative adverbial clause marker.

(79) 20th century *kę'* headless relative: Elton Greene, speaker p.c. 1972: 340
  Ę́:či hésnę: ha' učísneh yahwahę́:'ni' u'téhsnakwt
  one then the live coal she threw behind
  'She threw one coal back behind her,

  ha' kę' thru'na'níhręh.
  the right where so he was standing
  <u>right where</u> he was standing.'

The sentence below is from a traditional ceremony which takes place when a chief dies and his wampum is passed on to his successor.

(80) 20th century *kę'* headless relative: Elton Greene, speaker p.c. 1972: 444
  Kyení:kę: čuhtíčhe:θ yę́:θwe:t ha' kę' sęr' ę́ hsayę'.
  this wampum it will go back there the where you clan have
  'This wampum will go <u>right</u> back to your own clan.'

The particle persists in certain lexicalized constructions, such as terms for 'home'.

(81)   20th century lexicalized *kę'*: Edith Jonathan, speaker to F.G. Lounsbury
       1950:   MM487
       Ù:nę kyení:kę: wakwa'ruhčrę́ 'nę'   kę́ '   nyękwa'nenę́:tyę'.
       now this   we gathered ourselves where so we reside here and there
       'Then we held meetings <u>right</u> in our houses.'

(82)   20th century lexicalized *kę'* construction: Elton Greene, speaker
       p.c. 1971:17
       θá:ku'   ha' <u>kę'</u>   wak'nè:nę'.
       I went back the where   I live
       'I went back home.'

Kę' is an old demonstrative adverb, 'right here'. An entry in Hewitt's notebook reads: *Kę' sá'* 'Look <u>here</u>!' (Rudes 1999: 298). Cognates persist in other Northern Iroquoian languages with this function: Oneida *kʌ̨* 'here (close to speaker)', Mohawk *kèn: èn* or *kèn:* 'right here', as in *Kèn: sátien* 'Sit right here'.

The interrogative *hę̀:we* thus developed into a subordinator by replacing a demonstrative adverb in existing overt subordinate constructions. It has not completely displaced the demonstrative, but it has narrowed its meaning.

9.4   *Kahnę́:'kye* 'when'

In the 19th century, the pronoun *kahnę́'kye* 'when' had not expanded into contexts beyond direct questions. Within just a century, it has been extended to indefinite complements, definite complements, and headless relatives, which function as temporal adverbial clauses.

	19th century	20th century
Simple questions	x	x
Indefinite complements	--	x
Definite complements	--	x
Headless relatives	--	x
Headed relatives	--	

Figure 12. Development of *kahnę́ 'kye* 'when'

In the 19th century, these subordinating functions were filled by several constructions, all of which persist in the modern language. One was a simple clause preceded by the article *ha'*.

(83) 19th century adverbial clause: Joseph Williams, speaker 1888 ms 438, RC
1987: 376

Kę:θ   ha' waę̀ktányę'θ   wa'nyakyá'thnę'.
customarily the one village enters for me we two play ball
'When anyone visits me, he and I play a game of ball.'

A number of overt temporal subordinators were also already established in the
19th century, particularly *ù:nę* 'at the time, now, then, when', *áθę'* 'when, finally',
and *kanyú'* 'as soon as'.

(84) 19th century *ù:nę* 'when' clause: Thompson 1889 ms 441, RC 1987: 486
<u>*Ù:nę*</u> *ú'nę'   θáhra'w   waętkáhrye' ha' wé'θhahk*.
now as well he came back she told   the it was walking around
'<u>When</u> he returned, she told him it had been there.'

(85) 19th century *áθę'* 'when' clause: Joseph Williams, speaker 1888 ms 438,
RC 1987: 412
<u>*Áθę'*</u> *ranyatarì:re'   wa'ná:tkę*'.
when he lake crosses one met another
'<u>While</u> he was wading in the lake he met him.'

(86) 19th century *kanyú'* 'as soon as' clause: Thompson 1890 ms 445,
RC 1987: 122
<u>*Kanyu'*</u> *hésnę: θayuhθá:thu'   na'   ę́:čę'w*
as soon as then it got dark again much she will return
'<u>When</u> she returned in the evening

ù:nę hé'thu yahwá'nyę:t   kę'   nyutačuhkwa'níhrę.
then there they two went there where there it heap stood
they two went over to the heap.'

All persist robustly in the modern language.

(87) 20th century *ù: nę, kanyú'* 'when' clauses: Elton Greene, speaker
p.c. 1972: 184
*Ha' *<u>*ù:nę*</u> *ę'nwa'thę̀:wúha*'
the when it will sail
'<u>When</u> it sails,

<u>*kanyú'*</u>   *ęθka'ráťa:*',
as soon as I will ride again
<u>as soon</u> as I go back,

nęθkayętkáhnę'w   ha' θú:tar.
they will wake back up the soldiers
the soliders will wake up again.'

The new subordinator *kahnę́'kye* tends to be used in irrealis contexts: 'when in the
future, whenever'. Speakers report that it is usually possible to substitute the more
general *ù:nę* or *ha' ù:nę* 'when' for *kahnę́ 'kye*.

The temporal *kahnę́'kye* 'when' has just begun to reach Heine and Kuteva's Stage 3, but it is still a minority pattern with a specialized sense. It is replacing a temporal demonstrative in an established adverbial clause construction. Discussing the replacement of demonstratives by interrogative pronouns ancestral to *who, which*, etc. in Middle English, Romaine notes that 'The transition from interrogative to relative pronoun began in types of indirect questions where the interrogative character of the pronoun became weakened, and the pronouns so used were generalizing relatives' ['whoever', 'whatever', 'whichever' etc.] (Romaine 1984: 449, cited in Heine and Kuteva 2006: 220). The contexts in which the temporal *kahnę́ 'kye* 'when' occurs in modern Tuscarora suggest that at least this marker went through such a stage.

9.5 The variation

The interrogative pronouns 'what', 'who', 'where', and 'when' have now all reached the second step of Heine and Kuteva's Stage 3 of development, but apparently at different rates. At the end of the 19th century, 'what' was at the initial step of Stage 3, 'who' and 'where' at Stage 2, and 'when' just at Stage 1. All have now been extended to the second step of Stage 3, but with varying degrees of robustness. *Tawę́:te* 'what' is now the usual basis for headless relatives. *Káhne'* 'who' does appear in headless relatives, but these constructions are still in competition with basic finite clauses containing no indefinite pronoun. *Hę̀:we* 'where' appears in headless relatives functioning as locative adverbials, but the marker it is replacing, *kę'*, persists with a specialized meaning 'right where'. Finally, *kahnę́ 'kye* 'when' can appear in headless relatives, but it is still a minority pattern with a specialized irrealis meaning.

	'what'		'who'		'where'		'when'	
	19th	20th	19th	20th	19th	20th	19th	20th
Simple questions	x	x	x	x	x	x	x	x
Indefinite complements	x	x	x	x	x	x	--	x
Definite complements	x	x	--	x	--	x	--	x
Headless relatives	--	basic	--	robust, competing	--	major	--	minor
Headed relatives	--	--	--	--	--	--	--	--

Figure 13. Varied Rates of Development

It is of course not possible to determine with certainty why the pronouns developed in the order they did. One variable might be worthy of attention. The two interrogative pronouns that were the most advanced in the 19th century and

still are today, 'what' and 'who', created new structures. They did not simply replace other markers in existing constructions. The two interrogative pronouns that were less advanced in the 19th century and are still competing with other constructions, 'where' and 'when', are replacing demonstrative adverbs in well-established adverbial clause constructions. How this fact might have affected developments can only be a matter of conjecture. Bilingualism could have brought an awareness of distinctions the language had left unspecified up to that point, those accomplished by 'what' and 'who' subordinate clauses in English. The awareness might have prompted bilingual speakers to fill the newly-perceived lack with constructions based on native 'what' and 'who' pronouns. Place and time constructions were already established, so there was less motivation for expanding the functions of the indefinite 'where' and 'when' pronouns.

Such a hypothesis of course pushes the question back one step. Why did place and time constructions develop first? In both the 19th and 20th century material (as well as in all related languages), constructions persist that would provide likely sources for their development. A very common pattern of expression in Northern Iroquoian languages involves a sequence of clauses or sentences, the second of which begins with 'there', sometimes translated 'that's where'.

(88)   19th century 'there': Joseph Williams, speaker 1888, ms 438, RC: 401
   Wahrá:kę'   neyu'niyháknę   yuyenę́'ę́   karatkwár'u'y.
   he saw   it is creek between   it is dead tree fallen   large elm
   'He saw a large elm tree lying across a small stream of water.

   Hé'thu *kwè:ni'* *wahrá:kę'* *yętkyéhnač*   *uyękwì:re*
   there   simply   he saw   one burden carries   wood
   Near by this fallen tree he beheld a diminutive old woman

   tiwathwaritá'θ'a   kahskwaría.
   it is backpack small   it is feeble small
   loading up her forehead strap with fagots and pieces of wood.'

(89)   20th century 'there' construction: Elton Greene, speaker p.c. 1972: 181
   Yahwahrárku'   kyení:kę   kayeyękí:rya'ks
   he went away   this one   they are chopping wood
   'He went away, this one, to a chopping bee

   hé'thu *yahwáhre:t.*
   there   he went there
   that's where he went.'

Similarly, a demonstrative adverb *ù:nę* or *áθe'* 'at that time, then' often occurs at the beginning of a sentence, situating it temporally with respect to the preceding sentence.

(90)   20th century *ù:nę* 'then' sentence: Elton Greene, speaker p.c. 1972:220
        'Now then, the one that was slow, it caught him.
        It carried it back and threw his body somewhere.'

        <u>*Ù:nę*</u> *nektí:ha'nę:'t, wahrú:tkaht hení:kę:.*
        now   second one   it chased him   that one
        '<u>Then</u> it chased the second one.'

These same demonstrative adverbs now also function as part of conventionalized adverbial clauses, which form a prosodic unit with the preceding, now main clause. These adverbial clauses can now occur either before or after the main clauses they modify.

(91)   20th century *ù:nę* 'when' clause: Elton Greene, speaker p.c. 1972:223
        Yahwakuwé:rhu' ha' <u>ù:nę</u>   yahę́ čyęht.
        it covered her   the   when   she went down,
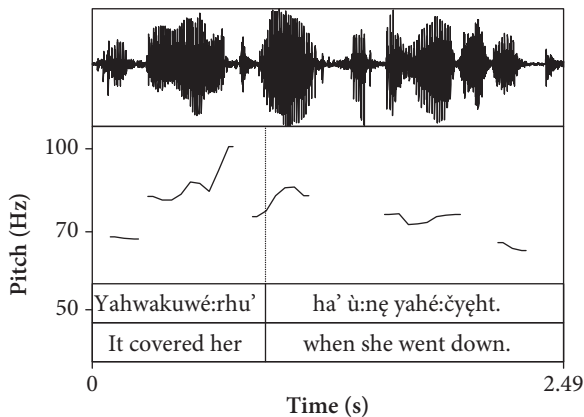   'It [the mist] covered her <u>when</u> she went down.'

Figure 14. 'The mist covered her when she went down'

10.   Conclusion

The proposal by Heine and Kuteva (2006), that interrogative pronouns can expand their range of uses along a pathway from simple questions to indefinite complements to definite complements to headless relatives to headed relatives, helps us make sense of the patterns we find in a number of languages, among them Tuscarora. The recurring matches we find between interrogative and relative pronouns are no accident: they can result from recurring pathways of development. Such developments are made possible by a fundamental semantic feature of the

markers themselves: all are indefinite pronouns. The proposal by Heine and Kuteva that progress along the pathway can be stimulated by language contact allows us to account for the apparently accelerated development of the Tuscarora pronouns within less than a century. In turn, Tuscarora provides especially robust support for the Heine and Kuteva proposals. Within this language alone, it is possible to document the development of all of the major interrogative pronouns words along the same trajectory, step by step. The perfect coincidence of these Tuscarora developments with bilingualism in English adds evidence of the potential effect of contact in stimulating such evolution. The recognition of this recurring pathway of development provides some explanations, but it also raises some intriguing new questions. We now know, for example, that individual pronouns do not all evolve at the same rate within individual languages, and that they do not evolve in the same order cross-linguistically. One future challenge could be to discover what kinds of factors are necessary for such developments to take place, and, once they are present, what additional factors might accelerate or retard them.

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