

Elusive Depictions of Time

An analysis of Japanese temporal connectors expressing 'before'

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Abstract

This study explores the two Japanese temporal connectors *mae ni* and *nai uchi ni* that express the notion of 'before.' These have been claimed to differ in factuality and certainty (Kuno, 1973) and on pragmatic grounds in the form of speaker attitude (Hasegawa, 2015). Using The Balanced Corpus of Contemporary Written Japanese, this study investigates the veracity of previous findings and aims to further deepen the understanding of what sets these two temporal connectors apart. Rather than in factuality or certainty, they are found to differ in lexical aspect and predicate class tendencies, as well as the ability to express minimal scales that work similarly to negative Horn scales in the case of *nai uchi ni*. As these are more informative the smaller they are, this also explains the pragmatic aspects that have been identified in previous research.

Keywords

temporal connectors, temporal clauses, lexical aspect, semantics, Japanese

Sammanfattning

Den här studien utforskar de två japanska temporala konnektorerna *mae ni* och *nai uchi ni* som uttrycker begreppet 'innan.' Det har hävdats att dessa skiljer sig i faktiskhet och säkerhet (Kuno, 1973) och på pragmatiska grunder i form av talarattityder (Hasegawa, 2015). Den här studien använder sig av korpusen The Balanced Corpus of Contemporary Written Japanese för att undersöka sannfärdigheten i tidigare fynd och ämnar att fördjupa förståelsen om vad som skiljer dessa temporala konnektorer. Studien finner att de inte skiljer sig inom varken faktiskhet eller säkerhet utan istället i tendenser i lexikal aspekt och predikatklasser, samt förmågan att uttrycka minimala skalor liknande negativa Horn-skalar i fallet av *nai uchi ni*. Eftersom dessa är mer informativa ju mindre de är förklarar detta även de pragmatiska aspekter som identifierats i tidigare forskning.

Nyckelord

temporal konnektorer, temporal satser, lexikal aspekt, semantik, japanska

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Abbreviations

1	first person
ACC	accusative
ADV	adverb/adverbial
ASS	assertion
COM	comitative
COP	copula
DAT	dative
DLM	delimitative
EMPH	emphasis
GEN	genitive
IMP	imperative
INF	infinitive
INS	instrument
LOC	locative
N	neuter
NEG	negation
NOM	nominative
NPST	non-past
PASS	passive
PST	past
PFV	perfective
POT	potential
PRF	perfect
PRS	present
PROG	progressive
Q	question
QUOT	quotative
SG	singular
TEMP	temporalis
TOP	topic

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1 Introduction

The notion of time is an abstract part of the human experience that languages all across the globe approach in various ways. Temporal information is often conveyed in what is aptly named a ‘temporal clause,’ and what is known as a ‘temporal connector’ places this information in time. Intuitive examples of these connectors in the minds of any English speaker are for instance *until* and *before*. The conceptual coverage of forms like these is often structured radically different depending on the language in question, making it very hard to contrast them in a terse manner. Kortmann (1997) has identified temporal connectors based on those available in English and other European languages, but other languages may boast temporal connectors that sometimes occupy spaces between the connectors present in English. A case in point is Swedish *förrän* used together with negative main clauses, which exists between *innan* ‘before’ and *tills* ‘until.’ When temporal connectors are looked at cross-linguistically, cases like these pose a challenge for current categorizations.

Temporal connectors are regularly problematic to characterize even within a given language. A prime example of this are the two temporal connectors used to convey the meaning of ‘before’ in the Japanese language: *mae ni* and *nai uchi ni*. There are two rivaling views on what sets these apart. One view (Kuno, 1973) is that what differs is factuality and speaker certainty about whether something will come to pass. The other (Hasegawa, 2015) is of the opinion that speaker attitude towards a situation is in fact what differentiates them, identifying situations where *nai uchi ni* is used to imply a negative outcome, an unexpected event order, and temporal proximity between the main clause and the temporal clause. This study intends to put these two theories to the test while simultaneously investigating whether there are other factors that can explain what separates the two Japanese ‘before-connectors.’ This is accomplished using a corpus-based approach to analyze samples containing Japanese temporal connectors *mae ni* and *nai uchi ni* in a randomly selected sample in an attempt to eliminate bias.

2 Background

The following discussion serves as an aperture into the ways temporal connectors can differ cross-linguistically, as well as how semantic analysis and cross-linguistic studies can help in sorting out these differences. Section 2.1 and 2.2 introduce temporal clauses and temporal connectors with the help of English temporal connector ‘until’ and discussion surrounding it. The topic is then brought to a cross-linguistic level in section 2.3 with different treatment of temporal connectors across languages and previous works on categorizing these. Subsequently, two Japanese temporal connectors expressing ‘before’ and controversy surrounding them are gone over in section 2.4. Relevant Japanese grammar for this study is introduced in section 2.5.

2.1 Temporal clauses

There exist a plethora of different clause types in languages, and these may behave very differently depending on the language in question. To name but a few of them, there are *nominal*, *adjectival*, and *adverbial clauses*, which can be broken down further into *relative*, *conditional*, and *temporal clauses*. The temporal clause is, according to Heinämäki (1974, p. 2), marked by so-called *temporal connectives* (traditionally called *temporal subordinators*) and expresses time specification for an event that takes place in the main clause. Although these are commonly referred to as temporal subordinators, Heinämäki (1974) points out that there need not be any formal relation of subordination between main clauses and temporal clauses, hence they will instead be referred to as *temporal connectors* from now on, in accordance with Wälchli (in press).

Further explanation of the behavior of these clauses is given to us by Edgren (1971, pp. 22-23). She may use different nomenclature when she details the inner workings of what she calls *T-clauses* (subordinate clauses that express temporal relations) and *T-structures* (the sentence structure in which these

appear), but the notions discussed are the same. Edgren (1971) identifies *time* and *aspect* as central semantic features in temporal clauses. *Time and order terms* convey simultaneity and sequence. Sequence is split up into *anteriority* and *posteriority*, and these are locked in time and locate an event in time without giving us any information about the event itself. *Aspect terms*, on the other hand, focus on the nature of the action itself, without placing it in time. To reiterate: key concepts at this juncture are temporal clauses, the (often) subordinate clauses that are connected to the main clause, and temporal connectors that connect temporal clauses with main clauses. Examples of the latter are ‘until’ and ‘before.’

2.1.1 A note on clause relations

Complex sentences consist of clauses joined together in different configurations based on their relation to each other. Often-referred-to clause relations are *coordinate clauses* and *subordinate clauses*. Coordinate clauses are independent of each other in form, and are added together with or without a coordinating conjunction. Subordinate clauses are grammatically dependent on the main clause and generally appear together with a subordinating conjunction. A coordinate structure is sequential and both clauses may act as their own complete sentences. Conversely, a distinct feature of the subordinate clause is that it is embedded within the main clause. This allows it to function as an argument and modify the main clause in some way, but it is impeded from standing alone as its own complete sentence (Van Valin, 1984).

2.2 English temporal connector ‘until’

‘Until-sentences’ - or sentences involving the temporal connector ‘until’ - traditionally involve a timespan that necessitates a durative expression in the main clause and a temporal clause that indicates how long said timespan stretches. These are attached to each other using the temporal connector ‘until.’ Curiously, however, in some contexts, such as (1b), the durativity of the main clause would appear unintuitive compared to a context like (1a).

(1) Durative expressions, 1st until (a) & 2nd until (b) (Karttunen, 1974, p. 1):

- a. The princess slept until the prince kissed her.
- b. The princess didn’t wake up until the prince kissed her.

Slept is readily interpreted as a durative action. However, *wake up* is not. Interpreting the negation in (1b) as a durative expression (as e.g. Heinämäki, 1974) is perhaps even less obvious. There are several schools of thought regarding this phenomenon, two of which are elaborated on by Karttunen (1974, pp. 1-2).

The *one-until theory* states that negation is itself regarded as a durative expression regardless of predicate type. This makes the above negation virtually synonymous with the positive sentence. This would also explain sentences in which other temporal connectors function in similar fashion. The counterargument to the one-until theory is not named explicitly, but I will for ease of reference dub it the *two-until theory*. According to this theory, there are two different ‘untils:’ one that functions as the ‘until’ that the one-until theory describes, and another that is a *negative polarity word* that is punctual and locates a point in time. This view is often bundled together with *negative transportation*, which is where the moving of negation from the complement to the main clause changes the grammaticality from impermissible to permissible. This change happens by virtue of that the process changes the scope that the negation governs. This second ‘until,’ from Karttunen’s (1974) point of view, has essentially the same meaning as ‘before.’ If the one-until theory is to be adhered to, negation has narrow scope, only spanning the main clause. If in contrast the two-until theory is taken as correct, negation spans the whole sentence, resulting in a broad scope.

(2) (Karttunen, 1974, p. 1)

*The princess woke up until 9.

A sentence like (2), Karttunen (1974) adds, is ungrammatical according to the one-until theory because it lacks durativity. According to the two-until theory, although punctual, its ungrammaticality stems from it not fulfilling the negation requirement.

Karttunen (1974) himself is a proponent of the two-until theory because temporal connectors 'to' and 'while' do not make things durative, which is difficult to reconcile with the one-until theory's claim of negation always having this effect. He illustrates that 'while' can be simultaneously grammatical and ungrammatical with negation, as in (3) below. This, in Karttunen's (1974) view, reveals a lack of support for the one-until theory.

(3) (Karttunen, 1974, p. 4)

a. I washed the dishes while you were not in the kitchen.

b. *I washed the dishes while you didn't wake up.

Heinämäki (1974) views things differently. She points to the following sentences and cites Horn (1972), who in turn points out that 'until' affirms an early bound and implies a late one that can be canceled as the b) examples reveal (Heinämäki, 1974, p. 165). (4) is a durative predicate and (5) is a negated form of a non-durative one, yet their implicatures can both be canceled in the same way. Heinämäki (1974) and Horn (1972) suggest that this supports that negation can be seen as a durative predicate, as well as that only one 'until' is necessary.

(4) Implicature cancelation 1 (Heinämäki, 1974, p. 165):

a. Mockingbirds sang until it got dark.

b. Mockingbirds sang until it got dark, and maybe even later.

(5) Implicature cancelation 2 (Heinämäki, 1974, p. 165):

a. Snow geese won't come here until November.

b. Snow geese won't come here at least until November, and maybe even later.

An intermediate stance is taken by de Swart (1996), who analyses *not... until* constructions using event-based semantics. She arrives at the conclusion that the one-until and two-until theories are equivalent to each other in most cases. The two-until theory's negative polarity usage is justified in case the sentence includes a negative polarity item that is not an explicit negation. de Swart (1996) opines that utilizing both approaches is beneficial for cross-linguistic purposes in order to get a sense of how different languages are structured in the case of temporal clauses. Examples of languages where this is appropriate are German and Dutch, two languages that do not display the non-durative until-type, hence a negative polarity variant does not exist, and the one-until approach is more suitable. de Swart (1996) also observes that until's narrow scope is tantamount to before's wide scope, which aids analysis of similarities and differences between e.g. English, which conventionally uses 'until,' and other languages such as Finnish, which has a tendency to use 'before' instead. All three strategies on display here are reflected in the languages of the world, and Europe in particular. There are languages where

a. the second 'until' is a kind of 'before,' e.g. Finnish *ennen kuin* 'before,'

b. the two 'until' can be considered equal such as English 'until,' and

c. the second 'until' is separate from the first one, e.g. Swedish *förrän* (Wälchli, in press).

2.3 Temporal connectors from a cross-linguistic perspective

Even a cursory glance at cross-linguistic data indeed confirms de Swart's (1996) claims about languages employing temporal connectors differently. In the above section we have seen that English may in fact have two different 'untils', albeit identical in form, and that English and e.g. Finnish have different strategies concerning semantic encoding of temporal connectors.

Another language to which English differs is Japanese. Comparing Bible excerpts below, it becomes clear that English separates 'until' and 'before,' whereas Japanese does not, instead using the same connector: *made* 'until.' What is divided into two connectors in English is instead treated as equal in Japanese, much like English two 'until' was described in section 2.2. Interpreting this as proof of English having a more diverse repertoire of connectors would be a mistake, however. As we will see in a later section, Japanese is instead more meticulous with its 'before' notion than English is.

(6) English Bible sentence 1 (eng-amstd 41013030):
Verify I say unto you, this generation shall not pass away, **until** all these things be accomplished.

(7) Japanese Bible sentence 1 (jpn-rom 41013030):
Yoku kīte-oki-nasai. Korera no koto ga, kotogotoku oko-ru made wa, kono
well listen-prepare-IMP these GEN INF NOM entirely happen-NPST **until** TOP this
jidai wa horobi-ru koto ga nai.
generation TOP fall-NPST INF NOM exist.NEG

'Verify I say unto you, this generation shall not pass away, **until** all these things be accomplished.'

(8) English Bible sentence 2 (eng-amstd 42002026):
And it has been revealed unto him by the Holy Spirit, that he should not see death, **before** he had seen the Lord's Christ.

(9) Japanese Bible sentence 2 (jpn-rom 42002026):
Soshite, omo no tsukawa-su sukuinushi ni a-u made shi-nu koto ha nai
and lord GEN send-NPST savior DAT meet-NPST **until** die-NPST INF TOP exist.NEG
to, sērē no shimeshi wo ukete-i-ta.
QUOT holy.ghost GEN revelation ACC receive-PRF-PST

'And it has been revealed unto him by the Holy Spirit, that he should not see death, **before** he had seen the Lord's Christ.'

Kortmann (1997, pp. 80-89) categorizes and lists 32 interclausal adverbial relations, nine being temporal (shown in Table 2). English has temporal connectors that express all of these, making the relations well suited for English and similar languages. Kortmann's (1997) list is focused on what languages have in common with each other, which in turn means that the adverbial relations have to be more general than when looking at either one specific language or a smaller-sized sample of languages. Although his list of relations has proven valuable in cross-linguistic research, this approach inherently results in coarser definitions of adverbial relations that do not lend themselves well to explaining differences that would require a more minute perspective.

One example when a more minute perspective proves useful comes from Wälchli (in press), who investigates the three temporal connectors 'before', 'until', and 'as.long.as' in Baltic languages with the help of 72 modern and ancient doculets of European and Indo-European languages. He discovers that Baltic languages are very diverse in their semantic coding of temporal connectors and use different strategies from the three until-strategies explained above, along with some variation in the encoding of 'before.'

Table 2: Kortmann’s (1997) interclausal adverbial relations and their English temporal connectors (p: subordinate clause)

POST (<i>Posteriority</i>) ‘before’	<i>p</i> simply follows <i>q</i> in time
ANTE (<i>Anteriority</i>) ‘after’	<i>p</i> simply precedes <i>q</i> in time
TAQUEM (<i>Terminus ad quem</i>) ‘until’	<i>p</i> identifies a point or period of time in the (relative) future up to which <i>q</i> is true
SICOEX (<i>Simultaneity Co-Extensiveness</i>) ‘as long as’	<i>p</i> opens up a time interval for the whole of which <i>q</i> is true
SIDUR (<i>Simultaneity Duration</i>) ‘while’	<i>p</i> opens up a time interval for the whole or part(s) of which <i>q</i> is true
SIOVER (<i>Simultaneity Overlap</i>) ‘when’	<i>p</i> overlaps with <i>q</i>
IMANTE (<i>Immediate Anteriority</i>) ‘as soon as’	<i>p</i> immediately precedes <i>q</i>
TAQUO (<i>Terminus a quo</i>) ‘since’	<i>p</i> identifies a point or period of time in the (relative) past from which onwards <i>q</i> has been true
CONTIN (<i>Contingency</i>) ‘whenever’	at all times when <i>p</i> is true, <i>q</i> is true, too

Wälchli (in press) goes on to mention that it is a well-known phenomenon that ‘before’ and ‘until’ clauses can contain negation (Thompson et al., 2007, pp. 247-248; Kortmann, 1997, p. 184; Cristofaro, 2003, pp. 62-63). He dubs this phenomenon *expanded negation* and describes it as when translations from one language to another lack the negation that was present - as well as syntactically required - in the source language. According to Hetterle (2015, pp. 136, 140) this is prevalent in Eastern European and South Asian languages, especially so in before-clauses.

This is also a prevailing theme in Slavic and Baltic languages (Wälchli, in press). A type of ‘before’ connector that often occurs together with expanded negation is what Wälchli (in press) calls *opportunity.before*. This metamorphoses the subordinate clause into an interval during which something does not happen; something that is, in the case of languages examined by Wälchli (in press), further emphasized by aspect and tense. This window of opportunity features a main clause that is appreciable in some way (e.g. being considered favorable or pleasant) and that should be taken advantage of while the opportunity still presents itself. This interval subsequently comes to a close when the subordinate clause takes place. Languages in the 72 doculets that have expanded negation have two different ‘before’ connectors: one for ‘opportunity.before’ and one for ‘before’ (Wälchli, in press, pp. 6-7). An instance of ‘opportunity.before’ is exemplified in (10) below, where *poka ne* brings the interval into existence:

- (10) Russian opportunity.before (Iordanskaja & Mel’čuk, 2009):
Ja porobotaju, poka ne stalo temno.
 I.NOM DLM.work(PFV).PRS.1SG **as.long.as/until/before** **not** become.PST.N.SG dark.N.SG
 ‘I’ll work for a bit, before it gets dark.’

In addition to Baltic languages and South Asian languages already mentioned, Japanese also has two ‘before’ connectors with seemingly similar properties to what Wälchli (in press) describes. The following section will be dedicated to discussing these more in depth.

2.4 ‘Before’ connectors in Japanese

The Japanese language, much like Russian, boasts a more minute distinction in how ‘before’ is expressed than is available in English. The two connectors at disposal are *mae ni* and *nai uchi ni*. There is some controversy regarding what conditions that require the usage of these connectors, particularly so in

the case of *nai uchi ni*. Two interpretations will be regarded in this thesis, namely those of Kuno (1973) and Hasegawa (2015).¹

Mae ni is the temporal connector that marks the ‘before’ clause, and a parallel can without issue be drawn to Kortmann’s (1997) *posteriority* where *p* simply follows *q* in time:

- (11) (Hasegawa, 2015, p. 207)
Taberu mae ni te wo arai-nasai.
 eating-NPST **before** hands ACC wash-IMP
 ‘Wash your hands before eating!’

Nai uchi ni, on the other hand, is expressed with a similar negative verb inflection as the one required in Slavic and Baltic languages and creates an interval. Its meaning can be paraphrased as ‘in the interval that something does not happen’ (Kuno, 1973, p. 153).

- (12) (Hasegawa, 2015, p. 208)
Oya ni mitsukara-nai uchi ni tabako wa yamema-shita.
 parent DAT be.found-NEG **before** tobacco TOP quit-PST
 ‘(I) quit smoking before (I was) caught by my parents.’

2.4.1 Kuno’s and Hasegawa’s perspectives

Kuno (1973) and Hasegawa (2015) are in agreement about that *mae ni* means that *p* simply follows *q* in time. Contrarily, they fundamentally disagree on the meaning of *nai uchi ni*.

Kuno (1973) is of the opinion that what sets *mae ni* and *nai uchi ni* apart is whether the speaker knows when a change is about to occur (Kuno 1973, 154). Example (13) and (14) below present us with a very fine difference in nuance under this interpretation. *Mae ni* in (13) would insinuate that the child has clear knowledge of when the teacher will be back, hence s/he knows that there is yet time to play. *Nai uchi ni* in (14), in contrast, would imply that the child is aware of that the teacher will come, but not exactly when, and tries to get his or her friends to play while there is still time, perhaps during recess or before class starts in the morning. Not knowing when something will happen means there is a risk that it may, and this is an interpretation that is rather readily available in the case of (14). This risk could be perceived as increasing as time goes on. Such a connotation is less immediate in *mae ni*, if it can be construed this way at all.

- (13) Child has clear knowledge (Kuno, 1973, p. 154):
Sensē ga ku-ru mae ni asobima-shō.
 teacher NOM come-NPST **before** play-let’s
 ‘Let’s play before the teacher gets here.’

- (14) Child has no clear knowledge (Kuno, 1973, p. 154):
Sensē ga ko-nai uchi ni asobima-shō.
 teacher NOM come-NEG **before** play-let’s
 ‘Let’s play before the teacher gets here.’

Further, some constructions can become quite odd from a pragmatic point of view when viewed in the way Kuno (1973) proposes. Comparing (15) and (16), using *mae ni* would imply that the speaker is aware of what point in time s/he will forget something and will hence act beforehand:

¹Some alterations are made to Kuno’s (1973) and Hasegawa’s (2015) examples. These are my own and are mostly made for consistency and adherence to glossing conventions.

- (15) (Kuno, 1973, p. 155)
Wasure-nai uchi ni henji wo kakima-shō.
 forget-NEG **before** answer ACC write-let's
 'I will write an answer before I forget it.'

- (16) (Kuno, 1973, p. 155)
 **Wasureru mae ni henji wo kakima-shō.*
 forget **before** answer ACC write-let's
 'I will write an answer before I forget it.'

Lastly, Kuno (1973) explains that an additional feature that sets *mae ni* and *nai uchi ni* apart makes itself known in the past tense: *mae ni* refers to a definite event that is known to have occurred, while *nai uchi ni* cannot be used in past tense without being ungrammatical. In other words, a *mae ni*-clause is a factual temporal clause in past tense. Contrastingly, a *nai uchi ni*-clause is non-factual and may not be used in other than non-past tense.

- (17) (Kuno, 1973, p. 157)
 **John wa kyonen Tōkyō ni ikima-shita ga, Tōkyō ni ika-nai uchi ni byōki ni na-tta.*
 TOP last.year Tokyo DAT go-PST but Tokyo DAT go-NEG **before** sick ADV
 become-PST
 'John went to Tokyo last year; before he went to Tokyo, he got sick.'

Hasegawa (2015) questions Kuno's (1973) claims and holds a different opinion concerning *nai uchi ni*. Her claim is that what sets *mae ni* and *nai uchi ni* apart is in fact not the speaker's knowledge of when something will occur, but instead has to do with speaker attitude. It can either (a) refer to an undesirable event, (b) express an event order that is unexpected or unconventional, or (c) express temporal proximity between the temporal clause and the main clause (Hasegawa, 2015, pp. 208-209).

For the first interpretation, an undesirable event, (12) is repeated below as (18):

- (18) Undesirable event (Hasegawa, 2015, p. 208):
Oya ni mitsukara-nai uchi ni tabako wa yamema-shita.
 parent DAT be.found-NEG **before** cigarettes TOP quit-PST
 '(I) quit smoking before (I was) caught by my parents.'

Being caught smoking by your parents is under Hasegawa's (2015) interpretation expressed as an undesirable event by the speaker, and s/he quit smoking during the interval that s/he was not yet caught. There is a stark difference here compared to Kuno's (1973) claim of mere knowledge (or lack thereof) of when something is about to happen. In the case of the second possible interpretation, an unexpected or unconventional order of events, Hasegawa (2015) explains that *mae ni* and *nai uchi ni* are in fact interchangeable. According to the third, temporal proximity between the temporal and main clauses, the speaker emphasizes that something happened very quickly.

- (19) Unexpected event order (Hasegawa, 2015, p. 208):
Kaisha wa ninka ga [ori-nai uchi ni / ori-ru mae ni]
 company TOP permission NOM [be.granted-NEG **while** / be.granted-NPST **before**]
kōji wo hajime-ta.
 construction ACC start-PST

'The company started construction before a permit was granted.'

- (20) Temporal proximity (Hasegawa, 2015, p. 209):
10-pun mo aruka-nai uchi ni, ashi ga itaku-na-tta.
 10-minutes even walk-NEG while feet NOM painful-become-PST
 ‘(My) feet started aching even before (I’d) walked for 10 minutes.’

Hasegawa (2015) also refutes what Kuno (1973) points out regarding the difference in factuality that *mae ni* and *nai uchi ni* exhibit in past tense. An example like (17), where *nai uchi ni* is used in past tense, is grammatically permissible according to Hasegawa (2015). What makes the example in question odd is rather something different than the temporal connector, such as the understanding of that people generally cancel trips if they become ill, ergo it would prove to be bad on pragmatic grounds (Hasegawa, 2015, p. 209). Looking to the scientific literature at large does not provide much in the way of answers, as many who have brought up the two Japanese temporal connectors (e.g. Hetterle, 2015, pp. 138, 141; Makino & Tsutsui, 2014, p. 232) cite Kuno (1973) as a reference, meaning there is an obvious bias. Sunakawa et al. (2016, p. 49) write that the two temporal connectors are interchangeable if the speaker knows that a state will change at some point. This resembles Hasegawa’s (2015) second *nai uchi ni* category - an unexpected event order - combined with Kuno’s (1973) requirement of speaker knowledge. No reference is given for this interpretation.

All above things considered, it is apparent that there is no clear consensus on the differences between Japanese temporal connectors *mae ni* and *nai uchi ni*. Kuno (1973) identifies previous knowledge as a focal point, but does not mention how specific the information that constitutes previous knowledge needs to be or how it is acquired. This would have to be tested through examining sentences with contexts where a speaker can be found to have or not have - or alternatively be presumed to either have or not have - knowledge about something and investigate which connector the speaker uses. Hasegawa’s (2015) claims would similarly require the examination of sentences, in this case in the interest of determining whether connector *nai uchi ni* can be found to be used in the different ways she describes. Furthermore, Hasegawa’s (2015) and Kuno’s (1973) examples may be constructed or carefully selected sentences, although never explicitly referred to as such. It is not known how exemplary the presented examples are for the overall use of *nai uchi ni* in Japanese. It stands to reason that it would lend credence to either theory if this could be backed up with sufficient data in a varied set of sentences from a diverse sample of sources, for example with the help of a corpus. This would help in the effort to establish the properties of temporal connectors *mae ni* and *nai uchi ni*, as well as how they are employed by language users.

2.5 Japanese grammar relevant to this study

In order to prevent confusion, some basic grammar is necessary to introduce. Compared to the English basic word order of subject-verb-object (SVO), Japanese basic word order instead follows the subject-object-verb template (SOV). While Japanese does allow for some deviation from this basic pattern, the main clause’s verb is always final (Makino & Tsutsui, 2014, p. 16) and the clause order is rigid. The main clause, although it precedes the temporal clause in time, is always placed after the temporal clause syntactically. This is illustrated in (21), where the word order subject-object-verb can be seen within parentheses in the example, making up the temporal clause. This is followed by the temporal connector *mae ni*, which in turn is followed by the main clause, containing the predicate *iu* ‘say.’

- (21) Sentence containing temporal connector *mae ni* (Makino & Tsutsui, 2014, p. 232):
 (*Nihon-jin wa gohan wo tabe-ru*) ***mae ni*** “*itadakimasu*” to *i-u.*
 (Japan-person TOP food ACC eat-NPST) **before** QUOT say-NPST
 ‘The Japanese say ‘itadakimasu’ (lit. ‘I humbly receive (this food)’) before eating their meals.’

This is important to keep in mind, as the before-relation will be referred to as “A before B” to adhere to the literature on the subject - and this indeed also holds true in Japanese temporally, as stated - but

the syntactic representation requires that the temporal clause, *B*, precedes the main clause, *A*. In the case of *mae ni* and *nai uchi ni*, the main clause always carries tense for the whole sentence. Temporal connector *mae ni* requires that the temporal clause's predicate is represented in non-past tense. *Nai uchi ni*, on the other hand, requires a non-past negation of the predicate. This means the negation *nai* in the temporal connector *nai uchi ni* is not part of the temporal connector itself.

(22) Sentence containing temporal connector *nai uchi ni* (Sunakawa et al., 2016, p. 49):

Shira-nai uchi ni tonari wa hikkoshite-i-ta.
know-NEG before neighbor TOP move-PRF-PST

‘(My) neighbor had moved before I knew it.’

The syntactic requirements that the connectors place on the predicate in the temporal clause are summarized below.

- *Mae ni*: *B*-NPST before *A*-NPST/PST
- *Nai uchi ni*: *B*-NEG before *A*-NPST/PST

Thanks to Japanese being agglutinative and therefore very regular in morphology, all negated non-past words end in *nai*. Temporal connector *uchi ni* may also be used together with a positive verb conjugation, in which case it expresses a positive interval instead (Kuno 1973, 153). This is more akin to Kortmann's (1997) *simultaneity duration* ‘while.’ Interestingly, *uchi* literally means ‘within,’ which means it directly expresses this interval. Representing the interval-creating *uchi ni* with *nai* preceding it serves the purpose of differentiating between these two structures. No more attention will be lent to the positive variety in this thesis.

Lastly, instead of prepositions, Japanese uses postpositions. Similarly to *nai* not being part of the temporal connector *nai uchi ni* but a way of differentiating it from its positive counterpart, *mae ni* and *uchi ni* may actually be broken down to smaller components². In fact, *mae* and *uchi* may both function as postpositions themselves. One example of this is shown using *mae* in example (23). The *ni* in the temporal connectors is a temporalis case marker but, depending on context, its meaning varies between being a temporalis marker, a dative marker, a locative marker, and an adverbial marker.

(23) *Mae* as a postposition (Own example):

Nijū-nen mae da-tta.
twenty-years before COP-PST

‘It was twenty years ago.’

(24) *Ni* as a temporalis marker (Makino & Tsutsui, 2014, p. 289):

Watashi wa maiasa roku-ji-han ni oki-ru.
I TOP every.morning six-o'clock-half TEMP wake.up-NPST

‘I get up at six thirty every morning.’

(25) *Ni* as a dative marker (Makino & Tsutsui, 2014, p. 291):

Watashi wa haha ni tegami wo yoku ka-ku.
I TOP mother DAT letter ACC often write-NPST

‘I often write letters to my mother.’

²This study treats both *mae* and *uchi* as one component together with its particle *ni* in accordance with how Kuno (1973) and Hasegawa (2015) have represented them.

- (26) *Ni* as a locative marker (Makino & Tsutsui, 2014, p. 302):

Watashi wa kinō Sanfuranshisuko ni i-tta.
I TOP yesterday San Francisco LOC go-PST

‘I went to San Francisco yesterday.’

- (27) *Ni* as an adverbial marker (Own example):

Kimi nara kitto kantan ni mondai ga to-ke-ru.
you if surely easy ADV problem NOM solve-POT-NPST

‘(I’m sure) you can solve the problem easily.’

Emphasis particle *mo* ‘even’ is used to place emphasis on something measurable like time, distance, amount, how good something is, and so on. The emphasis can either be positive or negative.

- (28) Emphasis particle *mo*, positive usage (Makino & Tsutsui, 2014, p. 250):

Gurē san wa konna muzukashī kanji mo yo-me-ru.
Gray Mr. TOP like.this difficult kanji **even** read-POT-NPST

‘Mr. Gray can read even difficult kanji like this.’

- (29) Emphasis particle *mo*, negative usage (Makino & Tsutsui, 2014, p. 250):

Harisu san wa konna yasashī kanji mo yo-me-nai.
Harris Mr. TOP like.this easy kanji **even** read-POT-NEG

‘Mr. Harris cannot even read easy kanji like this.’

Particle *no* can also be used for emphasis. This particle, however, does not measure something on a scale from little to a lot, or bad to good, like *mo* ‘even’ was shown to do above. Instead, it focuses on what came directly before and is used to speak about something emotively. It very frequently appears together with the question particle *ka*.

- (30) Emphasis using particle *no* (Makino & Tsutsui, 2014, p. 325):

Nani wo shite-i-ru no desu ka.
what ACC do-PROG-NPST EMPH COP Q

‘What are (you) doing?’

2.6 Summary

Temporal clause-marking temporal connectors come in many different forms and may behave very differently depending on the language in question. Pursuits such as Kortmann’s (1997) work towards a cross-linguistic categorization has proven to be an endeavor fraught with difficulty since connectors may, as Wälchli (in press) shows in the case of Baltic languages, occupy a space between the connectors available in the English language. Although some linguists, such as de Swart (1996), argue that on the surface differing theories may complement each other, there is lingering controversy centered around the properties that temporal connectors display within a given language, let alone between them. This is evidenced by Karttunen’s (1974) and Heinämäki’s (1974) diverging views on English *until*, as well as Kuno’s (1973) and Hasegawa’s (2015) differing theories regarding Japanese ‘before’ connectors *mae ni* and *nai uchi ni*, which differ on the points of factuality, speaker knowledge, and a speaker’s subjective assessment of a situation.

3 Aim of the study and research questions

Kuno (1973) has proposed the semantic factor factuality and the pragmatic factor of whether the speaker is certain of a state change as factors that select what temporal connector is appropriate. Hasegawa (2015) has proposed that what selects the connector is purely based in pragmatics, raising her three *nai uchi ni*-categories. The first research question is a more overarching one, intended to investigate both semantic and pragmatic factors that influence the choice between temporal connector *mae ni* and *nai uchi ni* in general. This research question is not limited to the factors proposed by Kuno (1973) and Hasegawa (2015), but it does contain them.

The subsequent three research questions are more specific and focus more intently on certain factors. As Kuno (1973) specifically points out tense as an important factor, the second research question revolves around formal properties that differ between structures that employ either temporal connector. Temporal connector *nai uchi ni* has been described as opening up a span during which something does not happen, which is likely durative in lexical aspect. Research question three is therefore intended to deepen understanding of exactly how the main clause and temporal clause interact in terms of lexical aspect, as well as how these tendencies differ between temporal connectors. As whether a speaker has knowledge of a state change plays another central role in Kuno's (1973) theory, research question four is geared specifically towards the question if speaker certainty can be shown to play a role in the selection of temporal connector.

1. Can the semantic and pragmatic factors that previous research claims dictate the selection of temporal connectors *mae ni* and *nai uchi ni* be shown to do so, or are there other, more likely factors?
2. What formal properties (e.g. tense) can help us understand differences between the temporal connectors *mae ni* and *nai uchi ni*?
3. Do main clause *A* and temporal clause *B* exhibit differences in lexical aspect depending on if they appear in *mae ni* or *nai uchi ni* constructions?
4. Is there a difference in certainty regarding state change between temporal connectors *mae ni* and *nai uchi ni*?

4 Method

4.1 Data

All data used in the study comes from The Balanced Corpus of Contemporary Written Japanese (BCCWJ), a corpus of written Japanese from various genres of literature, online sources, and proceedings, created by the National Institute for Japanese Language and Linguistics (Maekawa et al., 2014). It contains texts from three main categories: *publications*, *library*, and *special purpose*. The category publications consists of sentences randomly sampled from books, magazines, and newspapers published during a span from the year 2001 to 2005, and contains roughly 35 million words. The library books category is made up of books registered in thirteen Tokyo public libraries, and contains around 30 million words. Special purpose refers to subcategories outside of the previous two and contains governmental white papers, school textbooks, government reports, bestselling books, blog texts and online bulletin boards, poetry, law texts, and records from the Japanese parliament, making up roughly 40 million words combined. A context of up to 500 words around the keyword can be displayed.

The corpus aims to be contemporary, but the timespans from which the categories and subcategories are sampled necessarily vary. Books under the publication category, for instance, are sampled between 2001 and 2005 as mentioned above. Records from parliament are sampled from a period between 1976 and 2005. Blog texts, a relatively recent phenomenon, are only sampled between 2008 and 2009. Blog posts have no way of verifying the speaker's identity and their nationality is therefore unknown, which means they may not be native speakers at all. Poetry was considered too far removed from what could be considered normal word usage. Blog posts and poetry were therefore both disregarded from the study.

4.2 Sample selection and processing

Sample sentences that had the format *A before B* and contained either *mae ni* or *nai uchi ni* were chosen from the BCCWJ. Searching for a keyword returns a randomly ordered list of results. The temporal connector was entered as the keyword and the sample selection was done from the top moving towards the bottom, while sifting through hits and removing those that did not fit the structure of 'verb-connector-verb.' Sifting was an especially time-consuming task in the case of *mae ni*, as *mae* can be present in numerous constructions to act as e.g. a postposition as noted in section 2.5, a locative case such as *eki no mae ni* 'in front of the station,' along with other possible constructions that were of no interest in this study. Picking samples that contained the temporal connector *nai uchi ni* was done largely at random, with one exception - these were occasionally selected between in order to highlight as many different contextual usages of the temporal connector as possible. This is arguably a separate practice to cherry-picking examples, as the intended outcome was to highlight as many usages as possible instead of picking the one which was the most interesting and would prove an assumption.

Every entry in the corpus is written entirely in Japanese, which was challenging when samples must be painstakingly analyzed for factuality, speaker knowledge of a state change, as well as context; translated in an appropriate fashion; and glossed, which was done in adherence to the Leipzig Glossing Rules. Samples with contexts or words that could not be understood were also removed, although this problem could sometimes be remedied with assistance from native Japanese speakers. All 40 samples in the study are listed in appendix A, and all samples discussed in the study and that are listed in the appendix are referenced using their sample IDs followed by their so-called starting positions. This is all the data that is required to find any sample in the corpus, along with its full context.

4.3 Semantic and pragmatic analysis

The analysis had to start from what differing properties had already been proposed to exist by Kuno (1973) and Hasegawa (2015): factuality; whether a speaker had knowledge about a state change, here

referred to as *certainty*; and whether Hasegawa's (2015) speaker attitude categories could be discerned. These categories were identified through cues such as word choice, grammar, as well as context. The samples were analyzed for lexical aspect, predicate class, as well as structural properties like tense.

For the factuality analysis, Heinämäki's (1974) proposed factuality tests were used. These tests are explained in section 4.4. For determining certainty, a set of four conditions that constituted someone having knowledge of state change were established. These are explained in section 4.5. In section 4.7, the whole process is shown using two sample sentences. Research questions and the methods used to answer them are summarized below.

- Question 1: Can the semantic and pragmatic factors that previous research claims dictate the selection of temporal connectors *mae ni* and *nai uchi ni* be shown to do so, or are there other, more likely factors?
 - Method: Tested previously proposed semantic and pragmatic factors through the use of factuality tests and Hasegawa's pragmatic categories. Analyzed whether these factors likely determine the selection of temporal connector.
- Question 2: What formal properties (e.g. tense) can help us understand differences between the temporal connectors *mae ni* and *nai uchi ni*?
 - Method: Analyzed structural tendencies such as tense for any consistent differences between constructions containing the two temporal connectors.
- Question 3: Do main clause *A* and temporal clause *B* exhibit differences in lexical aspect depending on if they appear in *mae ni* or *nai uchi ni* constructions?
 - Method: Compared tendencies in lexical aspect and predicate class to determine whether the two temporal connectors behave differently.
- Question 4: Is there a difference in certainty regarding state change between temporal connectors *mae ni* and *nai uchi ni*?
 - Method: Investigated if there is any consistent difference in whether a speaker who uses one temporal connector over the other is certain of a state change and vice versa.

4.4 Factuality

Heinämäki (1974, pp. 69-96) proposes the existence of three types of temporal clauses: *factual* temporal clauses, *non-factual* temporal clauses, and *non-committal* temporal clauses, which may be interpreted as either factual or non-factual depending on the context.

4.4.1 Factual temporal clauses

In order to be classified as a factual temporal clause, it has to fulfill the following requirements (*A* and *B* stand for 'main clause' and 'temporal clause' respectively, *tr* stands for 'reference point,' and *tp* stands for 'current point.').

- *A* is true at some interval
- *B* is true at some interval
- $tr(A) < I(B)$
- Either $tp < tr(A)$ or $tp > I(B)$

The first two requirements are easily understood; the main clause and the temporal clause need to be true at some interval in time. The third requirement states that the reference point of A has to be temporally situated before the interval during which B comes to fruition. The fourth requirement states that the present moment has to be situated outside the interval whose endpoint is referenced by the reference point of A and the interval of B . Clauses in a factual construction may have both a strictly temporal relation, but may also have a causative relation; ‘causative’ in this case meaning that the realization of the main clause prevents the temporal clause from occurring. Both clauses are in the following example durative, but the events that the clauses nail down may just as well be punctual.

- (31) (Heinämäki, 1974, p. 71):
 Agatha was in Egypt before she wrote the story.

4.4.2 Non-factual temporal clauses

There are a few conditions that must be met for a temporal clause to be considered non-factual. The union of A and a set of assumed facts, i.e. the context (X), semantically entails that B is not true. In other words, A is an event that in and of itself prevents the temporal clause, B , from coming true given an appropriate context. This may be paraphrased as “ A , so not B ”

- $X \cup (A) \models \neg B$

The context itself cannot impact the truth value of neither A nor B . In addition, both the context as well as the union of the context and the main clause (A) have to be consistent and cannot be redundant:

- X has to be consistent
- $X \cup (A)$ is consistent and non-redundant, i.e:
 - $X \not\models \sim A$
 - $X \not\models A$
 - $X \not\models B$

Contrary to factual constructions that may be both strictly temporal and causative, non-factual constructions are always causative. A temporal clause is generally inferred to not be true if a corresponding counterfactual conditional fails. The following example from Heinämäki (1974, p. 78)³ illustrates this. In this type of context, the temporal clause is inferred not to be true.

- **Counterfactual conditional:** If it had not been A , it is expected that it had been B .
 - **Counterfactual holds true:** If Harry had not put money in the parking meter, it is expected that a policeman would have given him a ticket later on.
 - **Counterfactual does not hold true:** If Harry had not blown his nose, it is expected that later a policeman would have given him a ticket.

To summarize, the conditions for a temporal clause to be considered non-factual are:

1. The main clause together with some assumed contextual facts semantically entails that the temporal clause is not true.
2. The corresponding counterfactual conditional holds.

³Heinämäki initially uses J for main clause and K for temporal clause, while using A and B to refer to events within these. I simply things and refer to A and B directly, without mentioning J and K overtly (and indeed Heinämäki also ceases to refer to J and K later on), which is why these are missing here when they are present in Heinämäki’s original illustration.

4.4.3 Non-committal clauses

There are instances where a temporal clause can be interpreted as either a factual or a non-factual temporal clause depending on the context.

- (32) (Heinämäki, 1974, p. 79):
Rush the victim to the hospital before he dies!

(32) can be interpreted as either as having a factual or a non-factual temporal clause. The victim is either rushed to the hospital to save his life under the non-factual interpretation, or known to be too far gone to be saved and must just be transported to a hospital before death occurs under the factual interpretation.

4.5 Certainty

An established way of determining what is here referred to as certainty was not available in previous research. Ways of determining this had to be established as a result, preferably in a way that was as testable and replicable as possible while still enveloping as many situations as they could. The following four criteria were thought to be both general enough to be applicable to a large amount of contexts yet still few enough as to not be unwieldy.

1. The language user possessed autonomy over the situation, meaning they could influence or choose whether a state change occurred by actively determining to act or to not act. A person choosing to stop walking can know that s/he will do so, meaning they are certain of it. If they are acted upon by an outside force and made to stop walking, there is no such certainty. However, it did not necessarily have to be an act that was carried out in physical space, but could also be a subjective requirement towards, or assessment of, something external. An example of this is when one is convinced by something, in which case one usually knows what requirements something external has to fulfill in order to be convincing and change one's mind.
2. The situation was associated with a schedule, promise, an expected conduct, etc.. An example of this is a bell ringing at a school. While normally not something that one would have certainty of, this changes if someone is a student at a school and the school bell rings to signal the end of the day.
3. If temporal clause *B* referred to a timespan and therefore indicated an acute temporal awareness, this was considered to constitute certainty. Temporal clause *B* in this case had to refer to the timespan itself, not a change of state within a timespan. This way of determining certainty was introduced to deal with *nai uchi ni*-constructions that referred directly to a timespan.
4. General contextual expectations could nullify certainty. An example of this is when one is flustered and expected to not be in control of one's emotions, despite the state change being something one could be aware of in a normal emotional state.

Important to note is that literature often has a narrator narrate things on a detached plane from the characters, or has a character talk about another character's actions. Because of this, the second character or narrator could infer certainty behind the action in question.

Three of the criteria to determine certainty proposed in this thesis resemble pragmatic notions brought up in the broader scientific literature on the topic, namely criterion one, two, and four. The first criterion can be likened to assertions, which is a speech act in which something is claimed to hold (Pagin, 2015). The second criterion can be thought of as general world knowledge, and some so-called *felicity conditions* associated with speech acts are not too far removed. These felicity conditions are expected or appropriate circumstances for a speech act to be recognized as intended (Yule, 1996, p. 50). Notable felicity conditions are the *sincerity condition* and the *essential condition*. The former pertains to a speaker's

genuine intention to carry out a promise s/he has committed to, and the latter relates to a speaker's intention to create an obligation to carry out a promise (Yule, 1996, pp. 50-51). These are both closely linked to promises and to a perhaps lesser extent to things such as schedules, which could be argued function similarly. The fourth criterion is similar in principle to pragmatic presuppositions and how these can be destroyed by entailment in a given context - something known as the *projection problem* (Yule, 1996, pp. 30-33).

All these similarities to the scientific literature on pragmatics at large having been noted, however, certainty was in this study thought of a little bit differently compared to what has just been described. Criterion number one focuses greatly on whether a speaker has direct, tangible control over something happening, as opposed to merely claiming that something holds. Criterion number two is not content with general world knowledge to determine certainty. Under such a definition, anyone who knows anything about how a school operates will be considered to possess certainty about a bell ringing. Instead, a speaker needs to know when a bell will ring from schedule or experience with that very school. The fourth criterion regarding general contextual expectations that nullify certainty is less concerned with logical cancellation of presuppositions (e.g. "some athletes smoke - in fact all do") and more with situations where a speaker for some reason was prohibited from behaving normally, of which being flustered and not in control of emotions is a prime example.

4.6 Illustrating lexical aspect

In order to illustrate lexical aspect, the following diagrams are used to represent the main clause and the temporal clause. Adhering to Heinämäki's (1974) terminology, the diagrams feature a reference point, *tr*, of the main clause followed by an 'x' to mark its point of occurrence. *I* represents the interval of the temporal clause and is followed by said interval. In theory, the reference point of the main clause and the interval of the temporal clause may both be either punctual and durative depending on the predicate class. Any restriction on either clause comes down to the structure in question.

A: tr(A)x
 B: I(B)|-----|

Another possible lexical aspect interaction is illustrated below, where the main clause takes place during the temporal clause.

A: tr(A)x
 B: I(B)|-----|

4.7 Analysis examples

The following section incorporates all of the requirements above and applies them step-by-step to two sample sentences from the corpus.

Example (33) is analyzed as a factual non-past sentence because a week will pass no matter what one does, therefore the union of the context and the main clause *A* does not result in 'not *B*'. As the speaker decides when the trial period is over for the one on trial, he has autonomy over the situation and also, supposedly, speaks with a certain knowledge of how these trials are usually conducted. This means that the speaker is both in an autonomous position as well as being in a situation where he has a schedule of a certain code of conduct to relate to, hence constituting certainty. Temporal clause *B* is made up of a duration during which *B* does not happen, meaning it has a durative lexical aspect. Something ending has a punctual aspect by virtue of it being instantaneous. The temporal aspect of main clause *A* and temporal clause *B* is exemplified below. Lastly, the usage of temporal connector *nai uchi ni* is attributed to Hasegawa's third group, temporal proximity between the clauses, because the

speaker also expresses temporal proximity in the previous sentence. The result is a certain non-factual non-past tense sentence expressing temporal proximity.

(33) (LBi9_00048, 24530) Analysis example 1:

Mō saki ha nagaku-nai. issūkan mo shi-nai uchi ni owarima-su.
 now ahead TOP long-NEG. One.week even pass-NEG **before**, end-NPST

‘There’s not much left. It will be over within a week.’(Lit. before one week passes)

A: tr(A)x

B: I(B)|-----|

Example (34) is in contrast analyzed as a factual past sentence because Opal pairing an arrow with her bow does not semantically prevent McCleary from standing up after having been on the ground. This means the union of the context and the main clause *A* does not result in ‘not *B*.’ McCleary has no autonomy over Opal’s actions, there is no expected course of action from a schedule and the likes, temporal clause *B* points to an act and not a timespan in itself, and there is no context that enables certainty, meaning there is nothing to bring about certainty. Both main clause *A* and temporal clause *B* are instantaneous and therefore aspectually punctual. The result is a non-certain factual past tense sentence.

(34) (LBi9_00025, 12850) Analysis example 2:

Makureari wa mōichido korogatte aomuke ni nari, Opāru ga yumi ni
 McCleary TOP one.more.time roll lie.on.back ADV become, Opal NOM bow DAT
ya wo tsugaeru mae ni nantoka katahiza wo tsuite okiaga-tta.
 arrow ACC can.pair **before** somehow one.knee ACC press.against rise-PST

‘McCleary rolled again and landed on his back, but managed to stand up on one knee before Opal could pair another arrow with her bow.’

A: tr(A)x

B: (B)x

5 Results

5.1 Roadmap to results

This section details both semantic and pragmatic properties of the two Japanese temporal connectors *mae ni* and *nai uchi ni*. 5.2 revolves around semantic properties: factuality, lexical aspect and predicate classes, as well as the temporal clause's predicate's internal structure. Following the semantic analysis, 5.3 centers around several pragmatic abilities that *nai uchi ni*-constructions are known for and explains these using the insights garnered from the semantic analysis.

The first three research questions are addressed in 5.2 and 5.3:

1. Can the semantic and pragmatic factors that previous research claims dictate the selection of temporal connectors *mae ni* and *nai uchi ni* be shown to do so, or are there other, more likely factors?
2. What formal properties (e.g. tense) can help us understand differences between the temporal connectors *mae ni* and *nai uchi ni*?
3. Do main clause *A* and temporal clause *B* exhibit differences in lexical aspect depending on if they appear in *mae ni* or *nai uchi ni* constructions?

The fourth research question is addressed in 5.3.3:

4. Is there a difference in certainty regarding state change between temporal connectors *mae ni* and *nai uchi ni*?

5.2 Semantic properties

5.2.1 Factuality

Factuality in the temporal clause is determined by its compatibility contra incompatibility with the sentence's main clause and this section goes over how this is realized in the case of the two Japanese temporal connectors. Temporal clauses containing temporal connector *mae ni* may be factual, non-factual, as well as non-committal. They can contain different predicate classes with both durative and punctual lexical aspect. Example (35) below contains a factual temporal clause. It is factual because the main clause does not semantically prevent the temporal clause from coming true. Taking another bite from a pop-tart does not prevent someone from continuing speaking in the main clause after they have taken a bite, although the main clause might end up delayed somewhat. The predicate in the temporal clause, *tsuzukeru* 'continue,' is a punctual achievement without any internal aspectual structure.

- (35) (LBi9_00214, 24760) Factual temporal clause:
Kanojo wa tsuzuke-ru mae ni mata popputātsu wo kaji-tta
she TOP continue-NPST **before** again pop-tart ACC bite-PST
'She took another bite from the pop-tart before continuing.'

A: tr(A)x
B: (B)x

Example (36) shows a temporal clause containing a punctual active achievement as it has a designated final destination: the school. In this example, the predicate's non-past inflection in the main clause has an habitual meaning, in other words something that is done often. With this in mind, it cannot be

construed that the main clause, the girls helping the maidservants, somehow prevents their going to school, and must instead be understood as them continually going to school after having helped the maidservants, causing the temporal clause to be factual.

(36) (OB6X_00024, 11390) Factual temporal clause:

Maiko ni naru mae no shikomi no ko mo gakkō ni i-ku mae ni
 maiko DAT become before GEN training GEN girl too school LOC go-NPST **before**
onnashū no shigoto wo tetsudai-masu.
 maidservants GEN work ACC help-NPST

‘The girls who are training to become maikos also help the maidservants before going to school.’

A: tr(A)|----|
 B: (B)x

Example (37) may be read as factual, but it may also be understood as non-factual. This results in a non-committal clause that depends on the context to determine which reading is correct. The action in the main clause, abandoning the village, can be enough to prevent the starvation in the main clause from ever taking place. Maybe the people in the village leave for a neighboring village where supplies are more plentiful. On the other hand, it may be the case that there are no neighboring villages or any aid to receive for long stretches of road, which might end up in starvation along the way. In other words, the action in the main clause may not be enough to result in ‘not B.’ Starving is an incremental accomplishment, meaning there is a directed qualitative change represented in the aspectual structure. The non-committal temporal clause is therefore durative.

(37) (LBq3_00036, 55460) Non-committal temporal clause:

Ningen ga, garigari ni natte ue-ru mae ni mura wo sute-ru.
 People NOM, emaciated ADV become starve-NPST **before** village ACC abandon-NPST

‘The people abandon the village before they starve.’

A: tr(A)x
 B: I(B)|----|

Example (38) features a temporal clause which turns out to be non-factual because the main clause in this case does semantically prevent the temporal clause from coming true. Unlike the main clauses in (35) and (36) where it did not result in ‘not B’ and (37) where it was unclear, the main clause in (38) is readily interpreted as semantically resulting in ‘not B’ as a normal conversation would entail that people do not speak over each other. Speaking in such a situation would entail that you prevent the other person from doing so. The temporal clause’s aspectual structure consists of a punctual activity.

(38) (LBr9_00267, 48000) Non-factual temporal clause:

Aite ni iwa-reru mae ni jibun de i-tta.
 companion DAT tell-PASS **before** self INS say-PST

‘She spoke before he could say anything else (Lit. she spoke before being spoken to).’

A: tr(A)x
 B: (B)x

The temporal connector *nai uchi ni* has a predicate which aspectual structure is more complex compared to the temporal connector *mae ni*. Idiomatically speaking, ‘before’ is not always the best way of translating temporal clauses containing *nai uchi ni*. Although not always the case, it is oftentimes more

closely resembling English ‘while,’ which is not that far removed from the idea of a duration during which something does not happen, as ‘while’ is semantically similar to negation. A connection can here be drawn from English ‘while’ to the morphological structure of the predicate in *nai uchi ni*, and the literal meaning of *uchi*. Recall that *nai* is a negation and *uchi* literally means ‘within.’

Examples (39) and (40) are non-factual and factual respectively. In (39), the act of giving up expressed in the main clause semantically prevents any more moves from being made at all without it resulting in a new game, not the same one, hence his 100th move cannot be reached within the confines of the game that he just forfeited to his opponent, resulting in the temporal clause being non-factual.

(39) (LBh9_00043, 3900) Non-factual temporal clause:

Kazuo wa hyakute made uta-nai uchi ni, nageteshima-tta.
 TOP hundred.moves until play-NEG before, give.up-PST

‘Kazuo gave up while not yet having played his hundredth move.’

A: tr(A)x
 B: I(B)|----|

Conversely, (40) portrays a situation where the main clause does not in any way semantically prevent Nick from closing the door, which means he does in fact close the door, just not within the boundaries of the sentence in question. This means that the temporal clause must be construed as factual. Another frequent situation that appears hand-in-hand with temporal connector *nai uchi ni* is a direct reference to the timespan itself in the temporal clause rather than an act within a timespan. This is shown in (41) and cannot feasibly be construed as anything other than a factual temporal clause. After all, no imaginable human action in the main clause (unless of course in something like a fantasy or science fiction setting) can prevent time from passing, meaning that although a certain amount of time has not passed at the time of utterance, the referred-to timespan will decidedly come to pass.

(40) (LBj9_00224, 19720) Factual temporal clause:

Nikku ga senshitsu no doa wo shime-nai uchi ni, burijji wa mata kōfun to
 Nick NOM cabin GEN door ACC close-NEG before, bridge TOP again excitement COM
omowaku to de zawameki-hajime-ta
 anticipation COM INS buzz-start-PST

‘The bridge once again started buzzing with excitement and anticipation before Nick had even closed the door to the cabin.’

A: tr(A)x
 B: I(B)|----|

(41) (OB4X_00002, 46310) Unhindered non-factual temporal clause:

Kare wa rūrretto ni torai shite sanju-ppun mo shi-nai uchi ni nisen doru
 he TOP roulette DAT try do 30-minutes even pass-NEG before two.thousand dollars
mo kase-ida.
 even earn-PST

‘He tried the roulette and won two thousand dollars while not even 30 minutes had passed.’

A: tr(A)x
 B: I(B)|----|

Interesting differences between the two temporal connectors that can be observed pertain to lexical aspect. Whereas a temporal clause containing the temporal connector *mae ni* may be either punctual or durative and the clauses always follow each other temporally, the temporal connector *nai uchi ni*

always involves a main clause that occurs in the timespan during which the temporal clause does not come to fruition. This in turn means that the temporal clauses in *nai uchi ni*-constructions are durative, something that would be required in order to allow for a main clause to occur within it. It will be shown in 5.2.2 that this timespan in *nai uchi ni*-constructions may reflect a scale.

5.2.2 Scales

As stated above, predicates in *mae ni*-constructions may be durative or punctual. On the contrary, *nai uchi ni*-constructions are prone to be durative, containing directed, incremental change in the form of accomplishments - specifically incremental accomplishments. These accomplishments contain predicates conveying an incremental state change that is temporally bounded between two boundaries of an event - an inception phase and a completion phase (Croft, 2012, p. 63). An example of this is ‘eat,’ where there is an intuitive linear progression of something going from uneaten to eaten. The temporal connector *nai uchi ni* is a durative adverbial (Croft, 2012, p. 158) which also expresses a duration. *Nai uchi ni*’s durative adverbial and incremental accomplishment put emphasis on a progression that can be viewed as a scale in which something is undergoing directed, incremental change. In contrast, *mae ni* is not a durative adverbial, instead expressing a temporal relation like that of *posteriority* ‘before.’

Focusing on predicates’ properties in temporal clauses containing the two temporal connectors reveals that they behave differently internally. *Mae ni* constructions only contain one event in the temporal clause. The above *mae ni*-constructions’ predicates *continue* in the case of (35), *go* in the case of (36), *starve* in (37), and *be told* in (38), may not be broken down into separate events within themselves. In other words, the same event takes place from beginning to end in a temporal clause containing a *mae ni*-construction, given that it is durative and these two points differ at all. This is not the case with temporal clauses containing *nai uchi ni*-constructions, which may instead be broken down into an *a* and a *b* event. Before proceeding, a clarification is in order: the internal events present in *nai uchi ni* constructions’ predicates, *a* and *b*, should be kept separate from the main (*A*) and temporal (*B*) clauses present in the representations of lexical aspect. Lowercase letters represent the internal events inside of predicates and uppercase letters represent the main and temporal clauses.

Example (42) serves as a clear example of two separable events inside the temporal clause. Event *a* is that the speaker kills someone. This is evidenced to have already happened by the speaker adding ‘again.’ Event *b* is that the speaker kills again. The main clause, the police’s arresting of the speaker, happens between the *a* event and the *b* event. Events *a* and *b* are on a scale of killing one person and killing more people. The main clause is enough to semantically cause the temporal clause not to be realized, meaning that the *b* event cannot take place and the temporal clause subsequently becomes non-factual.

(42) (PB29_00715, 11740) Non-factual temporal clause:

Tanomu kara mata dareka wo korosa-nai uchi ni watashi wo tsukamaete kure.
 ask because again someone ACC kill-NEG before I ACC arrest please

‘I ask of you, please arrest me before I kill someone again.’

A: tr(A)x
 B: I(B)|----|

In (43), the *a* event is time passing, and the *b* event is a whole week passing. Event *a* comes to pass before the main clause. Event *b* happens only after the main clause has occurred between event *a* and event *b*. This means that event *b* takes place outside of the boundaries of the sentence, but it does come to pass as time passing cannot be prevented, making the temporal clause factual. The scale in this case is time passing and a whole week passing being at the top-end of said scale.

- (43) (LBi9_00048, 24530) Factual temporal clause:
Mō saki ha nagaku-nai. issūkan mo shi-nai uchi ni owarima-su.
 now ahead TOP long-NEG. One.week even pass-NEG **before**, end-NPST
 ‘There’s not much left. It will be over within a week.’

A: tr(A)x
 B: I(B)|----|

In (44), the temporal clause’s *a* event is Jason walking, and the *b* event of Jason walking several meters is blocked by him stopping in the main clause. Not even walking a few meters can be seen as the lower end of a scale that ranges from taking a first step to reaching Barbara. As the main clause semantically causes the temporal clause not to happen in this example, event *b* does not come to pass and the temporal clause becomes non-factual.

- (44) (PB59_00226, 64880) Non-factual temporal clause:
Shizuka ni susurinaku Bābara no koe ni Jēison ha sū mētoru mo ika-nai
 quiet ADV sob Barbara GEN voice LOC Jason TOP several meter even go-NEG
uchi ni tachitoma-tta.
before stop-PST

‘Jason hadn’t even walked a few meters towards the quietly sobbing Barbara when he stopped.’

A: tr(A)x
 B: I(B)|----|

In (45), the *a* event in the temporal clause is having a guess about how to see something through. Its *b* event is coming to a complete understanding. Having a guess as to how something is to be carried out is a minimal first step to carry out a task, and can be seen as the lower end of a scale ranging from barely having a guess to knowing fully how to do something. Whether the speaker ever comes to the understanding that she needs is not clear, making the clause non-committal.

- (45) (LBj9_00170, 100020) Non-committal temporal clause:
“jibun de yarimasu” watashi wa sokuza ni i-tta. dōyattara jitsugen su-ru no
 self INS do I TOP instant ADV say-PST. how realize do-NPST EMPH
ka kentō mo tsuka-nai uchi ni, sō itte-i-ta.
 Q guess even be.acquired-NEG **before** so say-PRF-PST

‘“I’ll do it,” I said instantly. I had answered before I had any idea about how to manage it.’

A: tr(A)x
 B: I(B)|----|

The scales in *nai uchi ni*-constructions are often temporal scales, but (44) demonstrates that it may also be spatial, and (45) shows that scales can refer to something more vague, referring to coming to a realization over a period of time. Something the examples have in common is that they convey a scale emphasizing a short duration. Specifically, they convey so-called minimal quantity and function similarly to what is known as negative Horn scales (Horn, 1984). Scales are usually more informative the more information something contains, e.g. in the case of semantically stronger linguistic alternates, which contain more information than semantically weaker ones. This is how a positive Horn scale functions, in which e.g. ‘all’ is more informative than ‘most.’

- (46) Positive Horn scale; left more informative, right less informative (Huang, 2017, p. 52):
 < all, most, many, some >

Horn has shown that, contrary to positive scales, minimal quantity is characteristic of negative scales and that minimal quantity under the scope of negation is most informative in a scale. These negative scales function in an inverse way to positive scales, i.e. the smaller the quantity expressed or the semantically weaker a linguistic alternate is, the more informative it here becomes. A negative Horn scale would therefore be more informative with a weaker expression.

- (47) Negative Horn scale; left more informative, right less informative (Huang, 2017, p. 52):
 < not some, not many, not most, not all >

The temporal connector *nai uchi ni* has been shown to contain a small scale and the predicate is always negated. This scale therefore behaves in a similar fashion to negative Horn scales.

5.3 Pragmatic properties

5.3.1 Proximity and emphasis

Temporal proximity can be shown to be present in both *mae ni* and *nai uchi ni*-constructions. Consider (48), a sentence expressing two events next to each other in time using temporal connector *mae ni*; and (49), a sentence also expressing two events that are temporally immediately next to each other, expressed with temporal connector *nai uchi ni*. This suggests that there is no difference in proximity per se between the two temporal connectors, and ‘before’-expressions can be said to have an inherent ability to express temporal proximity.

- (48) (PB33_00693, 17130) Temporal proximity *mae ni*:

Omoïda-su mae ni, kanojo ga i-tta.
 remember-NPST **before**, she NOM say-PST

‘She spoke before I remembered.’

- (49) (LBd9_00090, 78710) Temporal proximity *nai uchi ni*:

Suru to, sorekara i-ppun mo tata-nai uchi ni, tatemono zentai ga hi ni
 Then, after.that one-minute even pass-NEG **before**, building whole NOM fire DAT
tsutsu-mare-ta.
 engulf-PASS-PST

‘After that, the entire building was engulfed in flame before even a minute had passed.’

However, there is one element that sticks out: the emphasis particle *mo* ‘even’. In the corpus samples considered, it is uniquely present in *nai uchi ni*-constructions and emphasizes a minimal scale. Examples (50) to (51), much like example (49), all utilize this emphasis particle *mo* to acutely focus on the scale in question, be it strictly temporal as in (50) or spatial as in (51).

- (50) (OB4X_00002, 46310) Emphasized temporal scale:

Kare wa rûretto ni torai shite sanju-ppun mo shi-nai uchi ni nisen doru
 he TOP roulette DAT try do 30-minutes even pass-NEG **before** two.thousand dollars
mo kase-ida.
 even earn-PST

‘He tried the roulette and won two thousand dollars while not even 30 minutes had passed.’

- (51) (PB59_00226, 64880) Emphasized spatial scale:
Shizuka ni susurinaku Bābara no koe ni Jeison ha sū mētoru mo ika-nai
 quiet ADV sob Barbara GEN voice LOC Jason TOP several meter even go-NEG
uchi ni tachitoma-tta.
before stop-PST

‘Jason hadn’t even walked a few meters towards the quietly sobbing Barbara when he stopped.’

5.3.2 Undesirability and risk

Instances of *nai uchi ni*-constructions that are tightly knit together with the notion of undesirability may also be viewed through the lens of a scalar interpretation: the scalar increase of risk. Both Hasegawa’s and Kuno’s examples in (52) and (53) may be viewed as an increasing risk of something undesirable happening. Although the predicates involved may not always be intrinsically scalar, the risk of something happening may be viewed as such because said risk increases over time. Continuing to smoke over an extended period of time despite knowing that your parents would disapprove of your actions in (52) warrants being thought of as an increasing risk of getting caught. Similarly, the longer the teacher is away from the class in (53), the risk of the teacher coming back increases monotonously.

- (52) (Hasegawa, 2015: 208) Increasing risk:
Oya ni mitsukara-nai uchi ni tabako wa yamema-shita.
 parent DAT be.found-NEG **before** tobacco TOP quit-PST

‘(I) quit before (I was) caught by my parents.’

- (53) (Kuno, 1973: 154) Increasing risk:
Sensē ga ko-nai uchi ni asobima-shō.
 teacher NOM come-NEG **before** play-let’s

‘Let’s play before the teacher gets here.’

Examples (54) and (55) behave in the same fashion. In (54) a murderer is speaking to a police officer and asks him to arrest him before he can murder anyone else. There is a clear risk involved here, which increases over time presuming that the speaker is in need of medical care to prevent him from committing another murder.

- (54) (PB29_00715, 11740) Increasing risk:
Tanomu kara mata dareka wo korosa-nai uchi ni watashi wo tsukamaete kure.
 ask because again someone ACC kill-NEG **before** I ACC arrest please

‘I ask of you, please arrest me before I kill someone again.’

(55) shows an increasing risk that the roots that have been planted do not take hold adequately before the temperature drops.

(55) (LBf6_00009, 79930) Increasing risk:

Aki mo kanō desu ga jūgatsu ni natte kara de wa, ne ga jūbun
 fall also possible COP but October ADV become from INS TOP, root NOM adequate
kattchaku shi-nai uchi ni kion ga sagatte-shimau node uekae wa
 take.root do-NEG before temperature NOM drop-sadly because transplant TOP
kugatsu chuu ni okonaima-su.
 September middle TEMP do-NPST

‘It is possible (to do) during the fall but, because the temperature drops before the roots have taken hold adequately once you’ve entered October, you should transplant them by the middle of September.’

(56) shows a speaker who is running as a candidate in an election and is trying to devise a strategy together with his cohorts. This may be interpreted as the speaker lamenting the risk that election day will come before the voters have come to know who he is because the election cycle lasts for such a short time. The speaker in this example may also be emphasizing a short temporal scale, which would mean that this particular case can be seen as subsumed by two different pragmatic usages. Therefore it is not always clear-cut what meaning each of these pragmatic usages of *nai uchi ni* should be attributed to.

(56) (PM31_00217, 11430) Increasing risk or emphasized temporal scale:

Ni-shūkan de wa, kōhōsha no kao wo mi-nai uchi ni tōhyōbi ga
 two-weeks INS TOP, candidate GEN face ACC see-NEG before election.day NOM
kite-shima-u.
 come-sadly-NPST

‘With only two weeks at your disposal, election day comes before anyone knows who the candidates are.’

These are not the only examples in which a risk can be identified. (57) includes damage to internal organs if one does not check one’s blood pressure, which would naturally be seen as a risk. Here, however, the predicate in the temporal clause cannot be divided into two internal events, and there is no minimal scale, hence no emphasis. The immediacy associated with *nai uchi ni* is nowhere to be found, and the situation may therefore be perceived by the speaker to be common sense and that everyone should do it at some point in their lives instead of an imminent rising danger.

(57) (LBo4_00060, 77010) Non-certain temporal clause:

Shinkoku na zōki shōgai ga oki-ru mae ni, jibun no ketsuatsu
 serious internal.orgain damage NOM happen-NPST before, self GEN blood.pressure
wo haaku shite-okima-shō.
 ACC grasp do-prepare-let’s

‘It’s best to check one’s blood pressure before serious damage is done to internal organs.’

5.3.3 Certainty

Both temporal connector *mae ni* and *nai uchi ni* can express certainty and lack thereof, referred to as *certain* clauses and *non-certain* clauses. These behave differently in the sample in some respects. As we have seen above, temporal connector *nai uchi ni* sets itself apart in the form of it being able to acutely focus on a timespan present in the temporal clause. This is exemplified in (58).

(58) (LBd9_00090, 78710) Certain temporal clause:

Suru to, sorekara ippun mo tata-nai uchi ni, tatemono zentai ga hi ni
Then, after.that one.minute even pass-NEG **before**, building whole NOM fire DAT
tsutsu-mare-ta.
engulf-PASS-PST

‘After that, the entire building was engulfed in flame before even a minute had passed.’

By contrast, temporal connector *mae ni* may only refer to acts or occurrences within the temporal clause, not a timespan in itself. Within the sample, the temporal connector *mae ni* also stands out via the ability to express an internal form of autonomy; one of accepting something as convincing, or determining what something like a proposition will have to live up to in order for one to accept it. This is shown in example (59).

(59) (OB3X_00120, 91540) Certain temporal clause:

Kōmakku no irē no yōsē ni dōi su-ru mae ni, Gorubachofu
Cormac GEN unprecedented GEN request DAT agree do-NPST **before**, Gorbatjov
shokichō wa kokuēterebi no senmonka no iken wo ki-ita.
secretary.general TOP state.television GEN specialist GEN opinion ACC ask-PST

‘Secretary General Gorbatjov consulted a state media specialist before agreeing to Cormac’s unprecedented request.’

The certain clause in (58) shows certainty in the form of acute focus on a timespan, and examples (59) and (60) show certainty in the form of autonomy over action. Example (60) may also be expressing certainty through a schedule that is repeated each day, demonstrating that certainty may be expressed in several ways at once.

(60) (OB6X_00024, 11390) Certain temporal clause:

Maiko ni naru mae no shikomi no ko mo gakkō ni i-ku mae ni
maiko DAT become before GEN training GEN girl too school LOC go-NPST **before**
onnashū no shigoto wo tetsudai-masu.
maidservants GEN work ACC help-NPST

‘The girls who are training to become maikos also help the maidservants before going to school.’

The non-certain clause in (61) lacks any kind of autonomy over an action, schedule, or acute perception of a timespan.

(61) (LBo8_00007, 90510) Non-certain temporal clause:

Yūhan ga same-nai uchi ni tabe-nasai.
dinner NOM cool-NEG **before** eat-IMP

‘Eat (your) dinner before it gets cold!’

Examples (62) and (63) express situations that could normally be considered to be within the boundaries of what a person’s autonomy typically governs, but general contextual expectations dictate that people in a flustered mental state cannot be expected to have full control over their emotions. These examples therefore constitute situations where certainty is nullified by context.

Table 3: Certainty in *mae ni* and *nai uchi ni* temporal clauses

Construction	Certain	Non-certain	Total
Nai uchi ni	11	9	20
Mae ni	12	8	20

(62) (PB29_00321, 56210) Non-certain temporal clause:

"Daijōbu yo" Shārotto wa genki yoku kotae, kore ijō jibun wo itsuwaru koto no
 alright ASS Charlotte TOP energetically answer, this above self ACC lie INF GEN
 genkai ga ku-ru **mae ni** isoide jimusho kara dete i-tta.
 limit NOM come-NPST **before** hurry office LOC exit go-PST

'Charlotte energetically answered "I'm alright!" and left the office before she reached the point when she couldn't lie anymore.'

(63) (PB59_00165, 91670) Non-certain temporal clause:

Wazuka ni noko-tta risē ga nakunara-nai **uchi ni**, Diego ga satte kuretara ii
 little remain-PST sense NOM disappear-NEG **before**, NOM leave give good
 noni.
 despite

'If only Diego left before I lose what little sense I have left.'

The two temporal connectors *mae ni* and *nai uchi ni* show no significant difference in certainty between them. The temporal connector *nai uchi ni* displayed eleven certain temporal clauses and nine non-certain ones. The temporal connector *mae ni* showed twelve certain clauses and eight non-certain ones. These are summarized in Table 3.

5.4 Summary

This section has shown that the two temporal connectors *mae ni* and *nai uchi ni* do not differ in factuality but may in fact both be factual and non-factual. The temporal connector *mae ni* shows more diversity in predicate classes and the predicate displays a single event that carries on from beginning to end. On the other hand, *nai uchi ni* shows a propensity towards accomplishments containing scales that may be both spatial and temporal. These may be broken up into an *a* event and a *b* event, of which the *a* event does happen, but the *b* event is blocked from happening by the main clause that occurs between these two events, although *b* does take place outside of the scope of the sentence in the case of factual temporal clauses. Since *nai uchi ni*-constructions contain negation and focus on a short, intensified scale, these are similar to negative Horn scales where typically weaker linguistic alternates become more informative than typically stronger ones, and a scale is better suited to convey minimal quantity. This has numerous pragmatic effects. Whereas temporal proximity was shown to likely be inherent in 'before'-constructions in general, the minimal scales convey emphasis on either a temporal or spatial plane. Further, these intensified scales can shed some light on why *nai uchi ni*-constructions are often associated with undesirability. Specifically, as is argued here, they can be shown to have a likely connection to increasing risks. Lastly, the two temporal connectors show no significant difference in certainty, which could be present in the form of autonomy and influence over a situation or one's own conviction; a situation containing a schedule, promise, etc.; a direct reference to a timespan; or general contextual expectations that nullify certainty.

6 Discussion

6.1 Results discussion

The two prominent voices regarding Japanese temporal connectors *mae ni* and *nai uchi ni*, Kuno (1973) and Hasegawa (2015), have argued differences between these connectors from two different perspectives. Kuno (1973) has taken a stance based on a mixture of semantic and pragmatic analyses, claiming that what separates them are differences in factuality and speaker knowledge. Hasegawa (2015) has taken a stance based on pragmatic uses alone, identifying different ways of employing *nai uchi ni*. The current study, however, could not attest either of these interpretations.

Factual as well as non-factual temporal clauses have been shown to exist together with both *mae ni* and *nai uchi ni* constructions, and certainty under its working definition has been shown to add nothing of significance to the explanation of the two constructions (Table 3). Instead, other semantic differences seem more plausible, such as a difference in lexical aspect, where *nai uchi ni* occurs with durative temporal clauses, but *mae ni* may feature both punctual and durative temporal clauses. The predicates within a *nai uchi ni*-construction are incremental accomplishments and though *mae ni*-constructions may also include such a predicate, as (65) once again makes clear, it is not a requirement. While the predicate in a temporal clause may be an incremental accomplishment no matter which temporal connector is used, the temporal connector *nai uchi ni* sticks out as a durative adverbial whereas the temporal connector *mae ni* behaves like Kortmann's (1997) *posteriority* 'before.' As was expressed in section 5.2.1, *nai uchi ni* is not always best translated as 'before' idiomatically. This harkens back to what was said in section 2.3, namely that cross-linguistic categorizations used to explain features that languages have in common run the risk of overlooking features that require a more minute approach, which is something *nai uchi ni* certainly points towards requiring.

Another area where the two temporal connectors behave differently is whether they allow for a predicate to be divided into several subevents. *Nai uchi ni* allows for predicates to be divided into two separate events: event *a* and event *b*. The main clause happens between these events and either blocks event *b* in the case of non-factual clauses, or event *b* takes place outside of the sentence if the clause is factual. The temporal connector *mae ni* does not allow for separate events within the temporal clause's predicate. Compare (64) and (65) below. In (64), the temporal clause's predicate can be divided into *a*: Kazuo is making moves; and *b*: Kazuo makes 100 moves. (65) cannot be divided into an *a* event and a *b* event in the same way (*a*: the people starve; *b*: ???the people starve).

(64) (LBh9_00043, 3900) Non-factual temporal clause:

Kazuo wa hyakute made uta-nai uchi ni, nageteshima-tta.
TOP hundred.moves until play-NEG before, give.up-PST

'Kazuo gave up while not yet having played his hundredth move.'

(65) (LBq3_00036, 55460) Non-committal temporal clause:

Ningen ga, garigari ni natte ue-ru mae ni mura wo sute-ru.
People NOM, emaciated ADV become starve-NPST before village ACC abandon-NPST

'The people abandon the village before they starve.'

What seems like a promising explanation for behavioral differences is the scalar interpretation of the *nai uchi ni* temporal clause. Scales come in two varieties: a positive one in which a maximum is more informative, and a negative one where a minimum is more informative. The latter may appear to be peculiar at first, but Horn (1984) has shown that minimally informative linguistic alternates are characteristic for negative contexts. In a context like this - a negative Horn scale - a short timespan is valued more than a long one. The durative adverbial 'in the interval that something does not happen' in *nai uchi ni* coupled with an incremental accomplishment predicate in the temporal clause appears

to be such a context. However, it cannot be concluded that this interval adverbial is equal to negation, as it may appear in factual temporal clauses as well as non-factual ones.

In ‘before’ clauses, short duration seems to be more informative. In this regard they differ from Karttunen’s (1974) second until, in which lateness is instead more informative, see (1b), repeated below as (66).

- (66) Karttunen’s 2nd until, lateness informative (Karttunen, 1974, p. 1):
The princess didn’t wake up until the prince kissed her.

As the semantic encodings of the temporal connectors *mae ni* and *nai uchi ni* differ, it appears fair to say that Japanese ‘before’ clauses are similar to the third strategy presented in section 2.2, where the second ‘until’ is separate from the first one, such as in the case of Swedish *förrän*.

The scalar interpretation in this study brings a new perspective on pragmatic issues that have been brought up by Hasegawa (2015) in previous research. She claims that the employment of *nai uchi ni* is primarily motivated by pragmatic factors, but the ability to use *nai uchi ni* for various pragmatic goals may be a symptom of minimal scales. After all, if temporal proximity were the sole reason for a speaker using *nai uchi ni* in order to convey that two events happen close to each other, it is difficult to explain (67) with *mae ni* where the temporal clause and the main clause can be presumed to happen close to each other, much like *nai uchi ni* in (68).

- (67) (PB33_00693, 17130) Temporal proximity *mae ni*:
Omoida-su mae ni, kanojo ga i-tta.
remember-NPST **before**, she NOM say-PST
‘She spoke before I remembered.’

- (68) (LBd9_00090, 78710) Temporal proximity *nai uchi ni*:
Suru to, sorekara i-ppun mo tata-nai uchi ni, tatemono zentai ga hi ni
Then, after.that one-minute even pass-NEG **before**, building whole NOM fire DAT
tsutsu-mare-ta.
engulf-PASS-PST
‘After that, the entire building was engulfed in flame before even a minute had passed.’

This would mean that temporal proximity is an inherent property of both temporal connectors and whether this proximity is expressed or not is determined by context. Instead, it seems likely that a minimal scale along with emphasis particle *mo* ‘even’ often plays a role here. Continuing along this train of thought, it has become clear that the minimal scale may be strictly temporal as in (68) but also, spatial, as well as referring to less direct temporal scales. Interpreting an undesirable event in the same vein as an increasing risk is not outside the realm of possibility. Admittedly, herein lies a problem. A scalar interpretation is particularly problematic in the case of applying it to what is a supposed increasing risk as it is hard to in any way assure that there is a scale involved, which makes it hard to falsify this part of the theory.

6.2 Method discussion

This study has relied partly on previous research and has partly attempted to break new ground. The method for determining factuality was provided through the courtesy of Heinämäki (1974) and her proposed factuality tests. It is not without its difficulties, however. In order for a clause to be considered non-factual, Heinämäki (1974, pp. 79-80) explains that the context, as well as the union of the context and the main clause, have to be consistent. The problem is that what consistency entails is left up in the air, leaving much to the imagination and, more detrimentally from a research perspective, subjectivity.

Another issue comes in the form of where this study explored the determining of certainty in a way that can be tested. Kuno (1973, pp. 153-158) places great importance in the speaker being certain of when a state change will occur, although he does not explain how this is to be determined. To cope with this lack of instruction, this study used what was believed to be demonstrable ways of someone being certain of something. Autonomy over whether something occurs, be it a physical act or changing one's mind in the face of convincing information, was thought of as grounds for this. Situations with schedules, promises, etc., were likewise considered grounds for certainty. As temporal connector *nai uchi ni* stands out in that it may point to a scale, and since this often happens to be temporal, it seemed odd that a speaker could display such acute awareness of the passage of time without this constituting certainty. Albeit attempting to establish parameters that can be tested, this study is certainly guilty of vagueness in its own right through allowing for context to nullify certainty. This is not an ideal way of approaching the issue, but requirements have to be applicable to larger amounts of samples without devolving into individual requirements for each and every sample sentence, and something with absolutely no arbitrariness could not be thought of in the given time frame. Additionally, it is in hindsight likely possible to somehow conflate autonomy of action and awareness of time passing into one criterion, seeing as the scale that *nai uchi ni* points to may be both strictly temporal but also spatial, such as how far someone walks before stopping.

When determining certainty, at least using the methods applied in this study, context has to be known, especially so in the case of situations that usually contain schedules and the likes. Here a technical limitation rears its head. The corpus that was used, the Balanced Corpus of Contemporary Written Japanese, served as a splendid tool for the study, but limitations on the scope of the key word's surrounding context often made it difficult to be absolutely certain of a character's position. It was deemed worth coping with this detriment in exchange for the ability to gather samples from a variety of writers in order to make sure that tendencies discovered could not be attributed to a single writer's idiolect and similar language-altering factors.

An additional methodological issue is that the corpus approach does not give any information regarding whether some contexts would allow for both temporal connectors in the eyes of native Japanese speakers. This could be addressed via the introduction of a questionnaire in which native speakers are asked to determine if one temporal connector is necessary to use given a certain situation, or if they are both applicable.

7 Conclusions

This study has tested earlier theories about the two Japanese temporal connectors *nai uchi ni* and *mae ni* via the use of sample sentences from the corpus The Balanced Corpus of Contemporary Written Japanese, established factuality tests, and new ways of testing certainty. Below are the posited research questions along with the findings made to answer them, as well as suggestions for future research.

1. Can the semantic and pragmatic factors that previous research claims dictate the selection of temporal connectors *mae ni* and *nai uchi ni* be shown to do so, or are there other, more likely factors?

This study shows that Kuno's (1973) theory about factuality and speaker knowledge (here referred to as certainty) are unlikely factors to determine the use of the two temporal connectors *mae ni* and *nai uchi ni*, although there is still some lingering uncertainty regarding how speaker knowledge in its original sense is to be construed. Instead, there are more promising semantic factors like differences in tendencies regarding lexical aspect and predicate class that allow for interpreting temporal clauses containing *nai uchi ni* as a scale. This scalar interpretation of *nai uchi ni* goes some way to explain the pragmatic categories described by Hasegawa (2015), but not all of her proposed pragmatic uses seem necessary.

2. What formal properties (e.g. tense) can help us understand differences between the temporal connectors *mae ni* and *nai uchi ni*?

Formal properties that were found to differ were (a) lexical aspect, which appears more rigid in *nai uchi ni*-clauses than in *mae ni*-clauses; (b) predicate classes, that are more restricted in *nai uchi ni*-clauses than in clauses including *mae ni*; (c) *nai uchi ni*-constructions' ability to contain a predicate that can be divided into an *a* event and a *b* event, and (d) temporal connector *nai uchi ni* expressing a minimal scale that is either temporal or spatial.

3. Do main clause *A* and temporal clause *B* exhibit differences in lexical aspect depending on if they appear in *mae ni* or *nai uchi ni* constructions?

The temporal connector *mae ni* displayed temporal clauses that could be either punctual or durative, and the temporal clause always followed the main clause. The temporal connector *nai uchi ni* displayed temporal clauses that were durative and a main clause that took place during the span that the temporal clause expressed.

4. Is there a difference in certainty regarding state change between temporal connectors *mae ni* and *nai uchi ni*?

Under this study's definition of certainty, it was shown to have no effect on the selection of temporal connector.

The most conspicuous difference between the two temporal connectors on the surface level is the negation in *nai uchi ni*. It is yet to be determined whether this is actual negation, however. If it is not, it is peculiar that this temporal connector expresses a minimal scale similar to negative Horn scales to express emphasis and reverses the usual hierarchy of linguistic alternates. How this comes to be would be an interesting loose end to follow up on in later research.

The test for certainty has been an attempt at identifying testable parameters that indicate a speaker having knowledge of when a state change will occur, but there is still a certain level of arbitrariness to the process. In future research, it would be valuable to be able to make this test more explicit, particularly in instances that by this study were treated as certainty-canceling contexts.

In section 2.3, it was explained that Japanese connector *made* ‘until’ could be applied to situations where English requires the usage of two different temporal connectors. This would mean that *made* is similar to English ‘until,’ which are also found to be equal in several contexts, as elaborated on by Karttunen (1974) and Heinämäki (1974). Temporal connectors *mae ni* and *nai uchi ni* are both said to express ‘before,’ but *nai uchi ni* is often more appropriately translated into a number of other English connectors, such as ‘while,’ but sometimes none at all. This seems to point towards the two Japanese *mae ni* and *nai uchi ni* being, contrary to Japanese *made* ‘until,’ not equal and instead behaving similarly to Swedish *förrän*. Recall that in section 2.5, it was noted that there is also a positive *uchi ni* temporal connector that expresses a temporal relation akin to *simultaneity duration* ‘while.’ It would be interesting to investigate whether this is also as fleeting in its English translation as its negative counterpart has been found to be. If this can be found to be the case, it would lend even more credence to that *uchi ni* in both negative and positive constructions behave like Swedish *förrän*.

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A Appendix

Sample ID	Starting Position	Title	Author	Year
LBt9_00262	16070	Double shot	Diane Mott Davidson	2005
LBa9_00001	25490	Mashō bosatsu	Baku Yumemakura	1986
PB29_00321	56210	Tasogare no ringoen	Penny Jordan	2002
LBo4_00060	77010	Kōketsuatsu	Masayuki Taniguchi	2000
LBq3_00036	55460	Afugan kawaita daichisenka no naka no min	Naoki Maruyama	2002
OB6X_00024	11390	Gion no kyōkun	Mineko Iwasaki	2003
LBj9_00020	8150	Alto Solo	Antoine Volodine	1995
OB3X_00120	91540	The Negotiator	Frederick Forsyth	1989
LBi9_00025	12850	Kin Dread	T.J. MacGregor	1994
LBg9_00022	54790	Kyōto kanazawa satsujin jiken	Misa Yamamura	1992
PB29_00745	28480	Fenimoa sensē, ningyō wo miru	Robin Hathaway	2002
PB26_00119	54680	Hajimete no bōeki kinyū EDI	Akira Horigome	2002
LBpn_00006	59280	Kabutomushi - kuwa- gatamushi	Susumu Yamaguchi	2001
PM31_00088	12160	CAPA	Masako Imaoka	2003
PB37_00094	24030	Bold Tracks	Hal O'Leary	2003
LBk3_00121	6910	Kodomo to mastā suru 49 no sēkatsu gijutsu	Unknown	1996
PB39_00261	70810	Futari no anata	Patricia Rosemoor	2003
LBi9_00214	24760	Enjirareta kioku	Stephen White	1994
LBr9_00267	48000	Nakayoshi kocyōgumi	Hiroshi Ogiwara	2003
PB33_00693	17130	Sutorīto chirudoren	Ritsuko Kudō	2003
LBf6_00009	79930	Yoku wakarū kanyōshokubutsu	Kiyohiko Minagawa	1991
LBo8_00007	90510	Tossa ni tsukaeru ēkaiwa	Kyōko Mukai	2000
LBh9_00043	3900	Zanjinkanbaken	Naoki Kojima	1993
LBj9_00001	117210	Taboo	Elizabeth Gage	1995
LBi9_00048	24530	The Perfect Kill	A.J. Quinnell	1994
LBe9_00169	113300	Shuēsha gyarārī - sekai no bungaku	Jean Genet	1990
PB29_00715	11740	Aihiro kairō tatsujin jiken	Yasuo Uchida	2002
OB4X_00197	2080	FBI shinri bunsekikan	Robert Ressler	1994
PB59_00226	64880	The Bride's Portion	Susan Spencer Paul	2005
PM31_00217	11430	Fujin bōyū	Inada Nada	2003
OB4X_00167	30260	The Bridges of Madison County	Robert James Waller	1993
LBj9_00224	19720	Ueta umi	Wilbur Smith	1995
LBj9_00170	100020	The Kitchen God's Wife	Amy Tan	1995
LBd9_00090	78710	Shi no nagai kusari	Sara Wolf	1989
OB4X_00002	46310	The Other Side of Mid- night	Sidney Sheldon	1995

Continued on next page

Table 4 – continued from previous page

Sample ID	Starting Position	Title	Author	Year
LBt9_00136	37110	Taisēyō no kaisō no yō ni	Fatou Diome	2005
LBq9_00192	50730	Tōdai denki	Kazuo Inui	2002
OB3X_00111	16420	Dansu, dansu, dansu	Haruki Murakami	1988
PB59_00165	91670	Amai kutsujoku	Helen Bianchin	2005
PB12_00244	11250	Sherupasaitō no tōkaishizen hodō zentōha	Masaki Saitō	2001

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