1. Introduction

Since Vendler (1967) classified verbs into four semantic types, that is, states, activities, accomplishments and achievements, two major streams of theorizing this classification have been proposed. In one stream, Hale and Keyser (1993), Levin and Rappaport Hovav (1995), Rappaport Hovav and Levin (1998), and Kageyama (1996) propose that different verb meanings should be represented on their lexical semantic representations, a ‘submodule’ of the language faculty, with the basic assumption that the linguistically relevant information is projected from the lexicon, by a set of linking rules. In the other stream, the linguists of the minimalist syntax persuasion, including Mateu and Rigau (2002), Zubizarreta and Oh (2007), and Ramchand (2008), have explored a view of the architecture of grammar whereby the lexicon is eliminated as a module with its own special primitives and modes of combination, and argued for a syntactic representation of these basic classifications of verb meaning. Among them, Ramchand (2008) proposes to replace the lexical conceptual structure (LCS), as in (1a,b), by a purely syntactic representation, as in (2a,b), where InitP is the causing/initiating projection, ProcP is the process projection, and ResP is the result projection:

(1) 
a. $[[x \text{ DO-something}]]$ (activities)  
b. $[[x \text{ DO-something}] \text{ CAUSE [BECOME [y BE AP/PP]]}]$ (accomplishments)

(2) 
a. $[\text{InitP Init} [\text{ProcP Proc DP (Rheme)]]]$ (activities)  
  (Ramchand (2008: 46))  
b. $[\text{InitP Init} [\text{ProcP Proc [ResP NP [Res AP/PP]]}]]$ (accomplishments)  
  (ibid.: 39)

According to Ramchand (2008: 39), postulation of InitP, ProcP and ResP is a splitting up of what we normally think of as VP, in the same spirit as Rizzi’s (1997) Split CP or Pollock’s (1989) Split IP, and the syntactic characterization of each projection is as described in (3):

(3) 
a. InitP represents the outer causational projection and is responsible for introducing the external argument.  
  (Ramchand (2008: 39))  
b. ProcP is the heart of the dynamic predicate, since it represents change through time, and it is present in every dynamic verb.  
  (ibid.: 40)  
c. The ResP only exists when there is a result state explicitly expressed by the lexical predicate.  
  (ibid.: 40)  
d. The head of ResP is realized by the overt verb which can take a simple locational PP as its complement, and a DP in its specifier functions as the subject of the predicative PP.  
  (ibid.: 75)

Independently, Thompson (2006) claims that, within the syntactic domain which Hale and Keyser (1993) identified as ‘lexical syntax’, there is at least one syntactic projection of...
the aspectual functional category that is responsible for the determination of the situation aspect. Thompson (2006) claims further that the time-frame adverbial, which modify a telic event, and the durative adverbial, which modify an atelic event, are syntactically licensed in AspP and VP, respectively. One more important claim by Ritter and Rosen (1998, 2000) is that a DP which contributes to the telicity of the entire event moves to [Spec, Asp], so that it has a different morphological realization from the one which does not contribute to the telicity of the entire event (e.g. Accusative Case vs. Partitive Case in Finnish).

In this paper, combining Ramchand’s proposals with the Thompson’s ideas and Ritter and Rosen’s ideas, we will make the following three assumptions:

(4) a. Between InitP and ProcP is the functional projection of AspP, whose head can bear the semantic feature of [+telic] and the formal feature of [+bounded], the latter of which must attract either or both of the Theme DP and the Locative PP with an interpretable [+bounded] feature (cf. Chomsky (1995)).

b. Although the unmarked occurrence of the Res has a [+telic, +bounded] feature and contributes to the telicity of the entire event, it can have a [+telic, -bounded] feature when it implies result state persistence (see section 3.2).

c. When the Res with a [+telic, -bounded] feature is merged with a [+bounded] DP, the ResP assumes the [+telic, +bounded] feature, whence it moves to [Spec, Asp].

Exploiting these assumptions, we will claim that, in Japanese, a locative expression which contributes to the telicity of the entire event and one which does not do it show different morphological realizations with the postposition ni and de, respectively. More specifically, we claim that when a locative PP (or the ResP containing it) moves to [Spec, Asp], it is morphologically realized as DP-ni, while it is morphologically realized as DP-de when it remains in ResP or is originally merged higher than AspP. Also, when a locative PP is merged with the Res with a [-bounded] feature or a stative predicate, too, it is morphologically realized as DP-ni. In short, The gist of our claim is that the morphological form of a locative expression in Japanese is exclusively determined by its syntactic position and the formal feature with which it is associated. Relevant examples are illustrated below:

(5) a. Taroo-wa heya-ni/*-de terebi-ga hosii.
Taroo-Top room-in television-Nom want
‘Taroo wants (to have) a television in his room.’

b. Taroo-wa heya-de/*-ni ne-tei-ru.
Taroo-Top room-in sleep-Pres
‘Taro is sleeping in his room.’

We will defend our hypotheses from various facts in Japanese, including (i) the correlation between the telicity of the event denoted by the VP and the morphological form of a locative expression, (ii) a morphological distinction between resultative and depictive secondary predicates, (iii) the relative word order between an object-oriented floating quantifier and a durative adverbial denoting the temporal interval over which the result state

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1 As for the question why the merger of Res head with a [-bounded] feature and a DP specifier with a [+bounded] feature can form a ResP with a [+bounded] feature which moves to [Spec, Asp], we assume that something very similar can be seen in the wh-movement such as Whose father did you see there? In fact, in the movement of ResP to [Spec, Asp], the feature of the complement of Res is also relevant, because the resultative construction with a [-bounded] AP is interpreted as an atelic event:
(i) a. I laughed myself sick in three hours/*for three hours. (Tenny (1994: 43))

b. Mary hammered the metal flatter and flatter for three hours. (Travis (2010: 110, note 27))
of a delimited event can persist, (iv) the fact that a resultative predicate occurs closer to the verb than a locative expression even if they both are headed by nī (Takezawa (2000)), and (v) the failure of a locative nī-phrase in nominal projections, among others.

This paper is organized as follows: in section 2, we will introduce basic facts about the distribution of locative nī and locative de in Japanese, certain differences between resultative and depictive secondary predicates, and the failure of the locative nī to occur in the environments of nominalization contexts. We will summarize how Nakau (1994, 1995) and Takezawa (2000) explain some of these facts and why they cannot explain the others. In section 3, we will introduce a couple of syntactic devices that we will adopt in this paper, including those introduced in (4), present some pieces of evidence for them, and provide a syntactic explanation of the basic facts introduced in section 2. Section 4 is a conclusion.

2. Japanese Data To Be Explained

2.1. Locative Ni and Locative De

In English, although there are various kinds of locative prepositions, those with the same meaning may be marked by the same preposition, whether they cooccur with a stative predicate or a dynamic predicate. Thus, at, in, on, and to can occur in both dynamic and stative predicates. By contrast, in Japanese, there is a well-known asymmetry between dynamic and static predicates in regard to the morphological realization of a locative expression. Shibatani (1977) makes the generalization that locative expressions which modify a dynamic predicate is marked by de, whereas those which modify a static predicate is marked by nī. His statement about static predicates seems exceptionless, as shown in (5a). However, the fact about dynamic predicates is not that simple. (5b) shows that the dynamic predicate odoru ‘dance’ can only accommodate a locative DP-de. However, first, as shown in (6a,b), some dynamic predicates allow only a locative postposition nī on one of its locative DP, while they allow only a locative postposition de on another locative DP. Second, as shown in (7a,b), some dynamic predicates allow only the locative postposition nī on its locative DP:

(6) a. Genkan-de/*-nī atama-ni/*-de boosi-o kaburu.
entrance-at head-on hat-Acc wear
‘I wear the hat on my head at the entrance.’
b. Narita-kuukoo-de/*-nī Taroo-nī/*-de atta.
Narita-airport-at Taroo-to/at met
‘I met Taroo at Narita airport.’

(7) a. Gakkoo-nī/*-de toochaku-sita.
school-at arrived
‘I arrived at school.’
b. Gakkoo-nī/*-de kasa-o (oki-)wasureta.
school-at umbrella-Acc (put-)forget
‘Inadvertently, I left my umbrella at school.’

Third, and most interesting for our concern, some dynamic predicates allow both a locative nī and de on the same argument DP, as shown in (8a-d):

(8) a. Sono fune-wa hokkyoku-no umi-nī/-de kieta.
that ship-Top arctic-Gen sea-NI/-DE disappeared
‘That ship disappeared in the Arctic Ocean’
b. Niwa-ni/-de kosumosu-ga saita
garden-NI/-DE cosmos-Nom bloomed
‘Flowers of cosmos bloomed in the garden.’
c. Taroo-wa niwa-ni/-de mizu-o maita.
Taroo-Top garden-NI/-DE water.Acc sprinkled
‘Taroo sprinkled water on the garden.’
d. Sono sakana-wa sinkai-ni/-de seisoku-suru.
that fish-Top abyss-NI/-DE inhabitation-do
‘That fish inhabits in the abyss.’

Nakau (1995: 21) proposes the invisible kyokumen doosi or ‘phasal verb’, which feeds the meaning of ‘A situation happens somewhere.’ In the spatial cognitive structure he proposes, the situation denoted by the phasal verb dominates another situation expressed by the basic predicate, as in (9), and the outer PLACE that is the argument of the phasal verb is manifested with de, while the inner PLACE that is one of the arguments of the basic predicate is followed by ni:

(9)

\[
\begin{array}{c}
\text{SITUATION2} \\
\text{SITUATION1} \\
\text{THING} \\
\end{array}
\begin{array}{c}
\text{PLACE}_{\text{OUTER}} (\text{de}, \text{etc}) \\
\text{PLACE}_{\text{INNER}} (\text{ni}, \text{etc}) \\
\end{array}
\]

Importantly, Nakau claims that, since the structure in (9) is the spatial cognitive structure which is a reflection of the human cognitive capacity, this distinction between the two types of locative expression is not unique to Japanese but can be extended to English as well. He claims that, although there is no morphological reflection in English, the distinction has syntactic reflections on the word order, as in (10a,b), and extraction possibility, as in (11b,c):

(10) a. Many people drink in pubs in London.
b.* Many people drink in London in pubs.

(11) a. I slept in my bed in New York.
b. Which bed did you sleep in in New York?
c.* Which city did you sleep in your bed in?

Notice that Nakau’s (1994, 1995) spatial cognitive structure can eventually be subsumed into Ramchand’s (2008) syntactic three-layered VP-structure. More specifically, since Nakau divides the basic predicates into action, state, process, where he identifies the process as spatial displacement relation, it would be more reasonable to make the semantic category of SITUATION1 and SITUATION2 in (9) correspond to the syntactic category of ProcP (rather than ResP) and InitP, respectively. Thus, Ramchand’s syntactic structure can neatly accommodate what Nakau’s spatial cognitive structure tries to capture, without adopting it.

Unfortunately, one potential problem with Nakau’s theory is that it cannot explain why the same process predicate can sometimes take a locative expression headed by ni and otherwise by de, as in (8a-d).

A closer examination of the ni/de alternation reveals that the locative expression contributes to the telicity of the event denoted by the verb. Note also that a locative expression to which a holistic interpretation is forced, such as niwa-zentai-ni ‘garden-whole- NI’, can

\footnote{Where the place argument is a cover term for the location argument and the end point argument.}
only be headed by *ni*, as in (12d) and (13c) (cf. the English data in (27) and (28)):

garden-NI/DE ten-minute water-Acc sprinkled
‘I sprinkled water in the garden for ten minutes.’

b. Niwa-ni/??de jup-pun-de mizu-o maita.
garden-NI/?DE ten-minute-in water-Acc sprinkled
‘I sprinkled water on the garden {for ten minutes /?? in ten minutes}.’

c. Niwa-zentai-ni jup-pun-de / *jup-pun mizu-o maita.
garden-entire-NI ten-minute-in /*ten-minute water-Acc sprinkled
‘I sprinkled water on the entire garden {in ten minutes /*for ten minutes}.’

d. * Niwa-zentai-de jup-pun-de / jup-pun mizu-o maita.
garden-entire-DE ten-minute-in /*ten-minute water-Acc sprinkled
‘*I sprinkled water on the entire garden in ten minutes /* for ten minutes.’

(13) a. Niwa-ni/?de is-shuukan kosumosu-ga saita.
garden-NI/?DE one-week cosmos-Nom bloomed
‘Flowers of cosmos bloomed in the garden for a week.’

b. Niwa-ni/?de, uete-kara is-shuukan-de kosumosu-ga saita.
garden-NI/?DE plant-after one-week-in cosmos-Nom bloomed
‘Flowers of the cosmos bloomed in the garden in a week after I plant them.’

c. Niwa-zentai-ni/#de is-shuukan-de kosumosu-ga saita.
garden-entire-NI/#DE one-week-in cosmos-Nom bloomed
‘Flowers of the cosmos I planted bloomed in the garden in a week.’

A generalization at the first approximation seems to be as in (14):

(14) When a locative PP that modifies a dynamic predicate is morphologically realized as either the *ni*-phrase or the *de*-phrase, only the former can contribute to the delimitation (or “measuring out”; Tenny (1994)) of the event.

Nakau’s (1994, 1995) theory cannot explain this generalization, since he has not argued anything about the correlation between SITUATION1 and telicity / delimitation of an event.

An important fact arguably related to the generalization in (14) is that lexically specified atelic verbs in Japanese cannot take a locative PP headed by *ni* ‘at/to’ that refers to the end point of the motion, although they are compatible with a directional PP headed by *ni-mukatte* ‘toward’, as in (15a,b). The difference between *nimukatte* ‘toward’ and *ni* in terms of telicity basically corresponds to the contrast between *toward* and *to* in English, as in (16a,b):

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The durative adverbial is possible in (12a), where the locative *ni* is used, because the Accusative Case-marked object *mizu-o* ‘water-Acc’ can have either a bounded or an unbounded interpretation. If we coerce a bounded interpretation on *mizu* as in (i), the durative adverbial is excluded.

(i) Taroo-wa niwa-ni ip-pun-de / *ip-pun baketsu-jup-pai-no
Taroo-Top garden-entire-on one-minute-in / one-minute bucket-ten-CL-Gen
mizu-o maita.
water-Acc sprinkled
‘Taroo sprinkled ten buckets of water to the garden {in a minute /*for a minute}.’

This sentence is acceptable with the durative adverbial, if it refers to the situation in which there is a large enough garden to the whole of which many sprinklers can spray water at the same time and the water-sprinkling continued for ten minutes. However, even in this situation, (12d) is unacceptable.
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(15) a.?* Taroo-wa eki-ni hasitta.
    Taroo-Top station-to run
    ‘Taroo ran to the station.’

b. Taroo-wa eki-nimukatte san-jikan/*san-jikan-de hasitta.
    Taroo-Top station-toward three hour/*three-hour-in run

(16) a. Mary ran towards the store for 3 hours/*in 3 hours.
    b. Mary ran to the store in 3 hours/*for 3 hours. (Travis (2010: 110))

If SITUATION1 could always license a locative ni-phrase, we would be unable to explain the ill-formedness of (15a). If, on the other hand, we assume that the locative expression that modifies a dynamic predicate is realized as the ni-phrase only when it is merged in ResP (and moves to [Spec, Asp]), then we can exclude (15a) because, under Ramchand’s (2008) proposal, a lexically atelic verb does not have the projection of ResP (see (3c)).

2.2. Resultative Ni and Locative Ni

Despite these apparent problems with Nakau’s theory, one aspect in which Nakau’s claim sounds intuitively correct is the following fact about resultative and depictive secondary predicates: (i) the former can be marked by ni but not by de, while the latter can be marked by de but not by ni, as shown in (17), and (ii) hierarchically, the former occurs in a lower position than the latter, as shown by the contrast in (18):

(17) a. Taroo-wa kuruma-o makka-ni/*de nutta.
    Taroo-Top car-Acc deep red-NI/*DE painted
    ‘Taroo painted the car deep red.’

b. Taroo-wa hadaka-de/*-ni odotta.
    Taro-Top naked-DE/-NI danced
    ‘Taroo danced naked.’

(18) a. Taroo-wa kuruma-o hadaka-de makka-ni nutta.
    Taroo-Top car-Acc naked-DE deep red-NI painted
    ‘Taroo painted the car deep red naked.’

b.* Taroo-wa kuruma-o makka-ni hadaka-de nutta.
    Taro-Top car-Acc deep red-NI naked-DE painted

In Nakau’s theory, the resultative secondary predicates could be licensed in the same position as PLACE_{INNER} in (9), whereas the depictive ones could be licensed in the same position as PLACE_{OUTER} in (9).

Takezawa (2000) argues, however, that the locative and resultative ni-phrases should be licensed in syntactically different positions, because the distribution of floating quantifiers (FQs) in terms of the two types of ni-phrases shows the following contrast:

    Taroo-Nom paint-Acc car-on three-kind painted
    ‘Taroo painted cars with three kinds of paints.’

5 As for (16b), we assume, following Mateu and Rigau (2002) and Zubizarreta and Oh (2007), that ran is adjoined to the phonetically empty telic verb GO in the syntactic template of [x GO to the store], an option unavailable in Japanese for some reason.
   parcel-Nom home-to three-CL arrived
   ‘Three parcels arrived home.’

(20) a.*? Taroo-ga penki-de kuruma-o makka-ni san-dai nutta.
    Taroo-Nom paint-with car-Acc really red-NI three-CL painted
    ‘Taroo painted paints on three cars really red.’

b.*? Syatsu-ga dorodarake-ni san-mai yogoreta.
    shirt-Nom muddy-NI three-CL got-dirty
    ‘Three shirts got muddy.’

Given Miyagawa’s (1989) mutual-c-command analysis of FQs in Japanese and the wide-spread assumption that Nominative subject of the unaccusative verbs is initially merged VP-internally, Takezawa argues that the locative ni-phrase is base-generated in a position higher than the underlying position of the Theme DP, which moves across it, whereas the resultative ni-phrase is base-generated in a position lower than the underlying position of the Theme DP, as in (21a,b):

(21) a. \[\text{VP} \text{Locative Expression} [\text{v- DP (Theme) FQ V}]\]

b. \[\text{VP} \text{DP (Theme) FQ} [\text{v- Resultative AP/PP V}]\]

Since the FQ associated with the Theme DP can never occur in a position lower than the resultative ni-phrase at any point in the derivation, (20a,b) will be ruled out.

Alternatively, if we are to update Takezawa’s proposal in (21b) in terms of Ramchand’s (2008) three-layered VP-structure, we can assume that the resultative predicate is directly merged with the head of ResP, the Theme DP is originally merged at the Spec of the ResP, and the ResP containing both is moved to [Spec, Asp], whereas the ni-marked locative PP which is similarly merged with the head of ResP can move alone to [Spec, Asp], as in (22a,b):

(22) a. \[\text{DP, (Theme)} \ldots [	ext{Asp'} \text{Locative PP} [\text{ResP t}_1 \text{FQ} [\text{Res'} t}_1 \text{Res}]]\]

b. \[\text{DP, (Theme)} \ldots [	ext{Asp'} \text{ResP t}_1 \text{FQ} [\text{Res'} \text{Resultative PP Res}], [\text{Asp'} [\text{ProcP t}_1 \text{Proc} \text{Asp}]]\]

2.3. Nominalization

A third characteristic of a locative ni-phrase is that it is always excluded in the immediate projection of a nominal category: when ni can alternate with de in a verbal phase, it must be disambiguated to de in its nominal counterpart. The generalization is stated in (23), and for its typical illustrations, compare (8b) with (24) and (8d) with (25):

(23) A locative ni-phrase is always excluded in a nominal phase.  

(24) niwa-de-no/*niwa-ni-no kosumosu-no kaika
garden-DE-Gen/*garden-NI-Gen cosmos-Gen blooming
   ‘the blooming of a cosmos in the garden’

(25) sono sakana-no sinkai-de-no/*sinkai-ni-no seisoku
that fish-Gen abyss-DE-Gen/abyss-NI-Gen inhabitation

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6 We are using the term “a nominal phase,” rather than “a nominal context,” because a locative PP in a nominal context can be headed by ni, if it occurs in a verbal phase (i.e. vP or CP) embedded in a noun phrase, such as a relative clause or a postsyntactic compound (Shibatani and Kageyama (1988)).
‘The inhabitation of the fish in the abyss’

2.4. A Summary

We have observed four generalizations about the locative ni- and de-phrases: (i) stative predicates are only compatible with the ni-phrases; (ii) when a dynamic predicate allows both ni-marked locatives and de-marked ones, they differ in terms of telicity; (iii) although both the locative and resultative ni-phrases contribute to the telicity, the former can c-command the underlying position of a theme NP at a point in the derivation, while the latter cannot; (iv) in a nominalized context, a ni-marked locative is always excluded. Note also that in English there is no morphological distinction between the locative expressions modifying a dynamic predicate and those modifying a static one. Given these facts, it is reasonable to claim that the distribution of a locative ni-phrase in Japanese is constrained morphosyntactically at least.

In the next section, we will claim that there are two syntactic positions for the licensing of a locative ni-phrase: one is within Ramchand’s (2008) ResP with a [-dynamic, -bounded] feature (in the case of a locative ni-phrase associated with a static predicate), and the other is the Spec of a functional category Aspect with a [+dynamic, +telic] feature. In the latter case, we assume that either the locative PP itself or the ResP containing it must be raised to [Spec, Asp] in order to check off an uninterpretable [+bounded] feature of Asp.

3. The Proposals and Assumptions

3.1. Morphosyntactic Manifestations of Telicity and/or Boundedness

We have assumed, in the spirit of Ramchand (2008), that an accomplishment verb occurs in the three-layered syntactic projection including InitP, ProcP, and ResP, whereas an activity verb occurs in the two-story syntactic structure including only InitP and ProcP. We have also assumed, following Thompson (2006) and Travis (2010), that there is an aspectual functional category between the underlying position of the external argument and that of the internal argument, which we will call “(Inner) AspectP” here. Combining these two assumptions, we will have the structures in (26a,b) for sentences denoting telic and atelic events, respectively:

(26) a. accomplishments (telic events):
    \[ \text{[InitP DP (Agent)} [\text{[Init [AspP Asp (+telic)} [\text{ProcP Proc [ResP DP (Theme)} [\text{Res' Res (V telic)} AP (Stative/Resultative) / PP (Locative)])]])]]) ]

b. activities (atelic events):
    \[ \text{[InitP DP (Agent)} [\text{[Init [AspP Asp (-telic)} [\text{ProcP Proc DP (Rheme) (PP (Locative))} ]]]] ]

With these structures presupposed, we will propose that the locative PP in (26a), but not in (26b), moves to [Spec, Asp] when it contributes to the telicity of the entire event, and that it is morphologically realized as DP-ni when it moves to [Spec, Asp], and as DP-de otherwise.?

It is not uncommon across languages that an argument DP, whether it is Location or Theme, differs morphosyntactically when it makes an entire event telic and when it does not. First, in English, Ritter and Rosen (1998: 141) point out that a locative DP in a sentence-final PP does not measure out the event so that it is morphologically unconstrained (cf. Tenny (1994)), whereas a locative DP immediately following the main verb must measure out the event so that it has to accompany an adjective such as whole/entire, which contributes to the holistic interpretation of the DP. Relevant examples are shown in (27) and (28):

\[ \text{As for the cases of result state persistence, as a special case of (26a), see section 3.2.} \]
(27) a. The children taped pictures onto the wall.
   b.* The children taped the wall with pictures.
   c. The children taped (up) the whole wall with pictures.

(28) a. The tailor sewed buttons onto the dress.
   b.* The tailor sewed the dress with buttons.
   c. The tailor sewed (up) the entire dress with buttons.

We interpret the contrast between sentence (a) and sentences (b,c) in (27) and (28) as showing that the adjectives such as whole/entire are a morphological manifestation of the fact that a locative NP has been moved to [Spec, Asp] in order to check the [+bounded] feature of Asp.

Second, there are many cases in which a different morphological Case or adposition on a Location or Theme argument affects the telicity of the event denoted by the verb phrase. (16a,b), repeated below as (29a,b), are examples of English, taken from Travis (2010), and (30a,b) are examples of Finnish, taken from Ritter and Rosen (2001):

(29) a. Mary ran towards the store for 3 hours/*in 3 hours.  
   b. Mary ran to the store in 3 hours/*for 3 hours.  (Travis (2010: 110))

(30) a. Anne rakensi talo-a tunni-n/*tunii-ssa.  
   Anne build house-Part hour-Acc/*hour-inessive
   ‘Anne was building a/the house for an hour/*in an hour.’
   b. Anne rakensi talo-n vuode-ssa/*vuode-n.  
   Anne build house-Acc year-inessive /*year-Acc
   ‘Anne built a/the house in a year/*for a year.’  (Ritter and Rosen (2001: 436))

If the event delimiter moves to [Spec, Asp] and undergoes feature checking, it is not surprising that a DP or a PP which plays the same grammatical function shows a different morphological manifestation, depending on whether it measures out the event or not.

Third, the following Japanese examples show that, for some verbs, a locative DP- ni can measure out the event on its own, without a special aspectual marker on the verb, though a locative DP- o can measure out the event only if the verb is followed by a special aspectual marker, as the contrast between (31a) and (31b) shows (cf. Kishimoto (2001: 117)).

   Masao-Top wall-Loc poster-Acc tape-Past/tape-complete-Past
   ‘Masao covered posters onto the entire wall.’
   b. Masao-wa kabe-o posutaa-de hari-tukushi-ta/*hat-ta.  
   Masao-Top wall-Acc poster-with tape-completive-Past/*tape-Past
   ‘Masao covered the entire wall with posters.’

We can interpret this asymmetry between (31a) and (31b) by assuming that, the locative ni-phrase is a morphological manifestation of the fact that it measures out the event, whereas an Accusative Case-marker on a locative DP is not. It follows from this that, in the former case, the telicity does not have to be doubly indicated by the overt aspectual marker tukusu ‘complete’, whereas the aspectual marker is obligatory in the latter case.

Kageyama (1993) identifies tukus ‘complete’ as a lexical verb. On the other hand, Nishiyama and Ogawa (2011) and Ogawa and Niinuma (2011) argue, in the spirit of Fukuda (2007), that tukus is an aspectual functional category that selects vP as its complement. Whichever approach will be taken for the exact nature of the “aspectual marker” does not affect our explanation of the facts in (31).
On the basis of these cross-linguistic facts, we claim that, just like the DP with whole/entire in (27c) and (28c), the PP\textsubscript{LOC} headed by to in (29b), and the DP\textsubscript{Acc} in (30b), the DP\textsubscript{LOC}-ni in (31a) is a morphological manifestation of the fact that it measures out the event so that it has been moved to [Spec, Asp]. Given this claim, de in (12b,d) is ruled out because the time-frame adverbial and zentai ‘whole’ are only compatible with a telic event, while the locative de-phrase associated with the verb maku ‘sprinkle’ is only compatible with an atelic event. Similarly, (12c) is ruled out with the durative adverbial (which denotes the temporal interval over which the action persists) because it is incompatible with the locative ni-phrase, which is a morphological manifestation of a telic event.

3.2. The Time-Frame Adverbial, the Durative Adverbial, and the FQs

All the accomplishment verbs and achievement verbs are compatible with a time-frame adverbial such as in an hour, due to their telic nature, as in (32a). A certain subset of them can also take a durative adverbial that specifies the temporal interval over which the result state of the event denoted by the telic verb persists, as in (32b). We will refer to (32b) as a sentence with the “result state persistence” reading of a telic verb (Kageyama (1996: 59)):

(32) a. In the magic show, the young lady disappeared in a second.
   b. The young lady disappeared for some time and then reappeared.

Given the VP structure in (26a), we will assume that a time-frame adverbial is adjoined to AspP, which lies between InitP and ProcP, as in (33a), and the durative adverbial is adjoined to either ProcP or ResP, as in (33b,c) (cf. Thompson (2006)). While adjunction of a durative adverbial to ProcP is only compatible with an atelic verb, its adjunction to ResP is only compatible with a telic verb, since an atelic verb should not have the projection of ResP. Moreover, we claim that adjunction of the durative adverbial to ResP, as in (33c), is possible when the event denoted by the telic verb implies the existence of a result state and the adverbial modifies the temporal interval over which it persists.

(33) a. \[
\text{[Init} \text{DP (Agent)} \text{[Init [[AspP Asp (+telic)] [ProcP Proc [[ResP DP (Theme) [Res’ Res (V\textsubscript{telic} AP/PP)] in an hour]]] (telic verbs with a time-frame adverbial)}
\]

b. \[
\text{[Init} \text{DP (Agent)} \text{[Init [[AspP Asp (-telic)] [ProcP Proc (V\textsubscript{atelic}) DP (Rheme)] for an hour]]] (atelic verbs with a durative adverbial)
\]

c. \[
\text{[Init} \text{DP (Agent)} \text{[Init [[AspP Asp (+telic)] [ProcP Proc [[ResP DP (Theme) [Res’ Res (V\textsubscript{telic} AP/PP)] for an hour]]] (telic verbs with a durative adverbial)
\]

A similar duality to the one in (32a,b) can also be observed in Japanese. Consider (34a,b), which show that the verb ireru ‘put’ taking a Theme DP and a locative ni-phrase is compatible not only with a time-frame adverbial but also with a durative adverbial which expresses the temporal interval over which the result state of the telic event persists:

(34) a. Kuruma-o san-pun-de shako-ni ireta.
car-Acc three-minute-in garage-in put

‘I put the car into the garage in three minutes.’

car-Acc one-hour garage-in put

‘I put the car in the garage for an hour.’ (Kageyama (1996: 57))

We will claim that (34a) and (34b) differ not only in the positions of the time-frame adverbial and durative adverbial but also in the position of the locative ni-phrase: the
ni-phrases in (34a) is in [Spec, Asp], whereas that in (34b) remains in ResP. Evidence for this claim comes from an asymmetry in the distribution of floating quantifiers, as in (35) and (36):

(35) a. Kuruma-o jyyu-dai san-pun-de shako-ni ireta.
    car-Acc ten-CL three-minute-in garage-in put
    'I put ten cars in the garage in three minutes.'

b. Kuruma-o san-pun-de shako-ni jyyu-dai ireta.
    car-Acc three-minute-in garage-in ten-CL put

c. Kuruma-o shako-ni san-pun-de jyyu-dai ireta.
    car-Acc garage-in three-minute-in ten-CL put

    car-Acc ten-CL one-hour garage-in put
    'I put ten cars in the garage for an hour.'


   car-Acc garage-in one-hour ten-CL put

A generalization about the distribution of FQs with respect to the locative ni is stated in (37):

(37) a. When a time-frame adverbial modifies an accomplishment verb, an FQ that is associated with a Theme DP can follow a locative ni-phrase.

b. When a durative adverbial specifies the temporal interval over which the results state of an event denoted by an accomplishment verb persists, an FQ that is associated with a Theme DP cannot follow a locative ni-phrase.

Our explanation of this generalization is very simple. Suppose, in line with (4c) and (33c), that both the locative ni-phrase and the durative adverbial in question are merged in the ResP. Moreover, suppose that the postpositional ni is a morphological realization of the fact that the locative PP has been moved to [Spec, Asp]. Then, (35c) will have the structure as in (38), overleaf. Here, the locative PP has moved across the FQ, which is stranded in the Spec of ResP when the Theme DP moves to a higher position (by scrambling or whatever syntactic operation). As a result, the surface word order of Theme DP-o > locative ni-phrase > the time-frame adverbial > the object-oriented FQ follows.

On the other hand, in the structure of (36a) as in (39), overleaf, ResP is headed by a [+telic, -bounded] feature, which licenses the durative adverbial of the result state persistence reading, and the locative ni-phrase here is licensed in situ. In fact, the locative ni-phrase in (39) can NOT move to [Spec, Asp], since it must enter into a predication relation with the Theme DP in [Spec, Res], and its movement out of the ResP would break up the necessary predication. In this case, the uninterpretable [+bounded] feature on Asp can be checked against the interpretable [+bounded] feature of the entire ResP which can move to [Spec, Asp], as in (39) (cf. (4c) for the pied-piping of ResP). However, since the direct object (and the FQ) originates in [Spec, Res] and since both the locative PP and the durative adverbial are base-generated in a lower position in ResP, there would be no way to place the FQ following the locative ni-phrase. This is why (36b,c) are ill-formed.

(38) [\text{Init} \text{PP} \text{Subj} [\text{Init} \text{Init} \text{X} \text{Obj-o} \text{X} \text{Asp} \text{PP} \text{DP-ni} \text{Asp} \text{san-pun-de (in three minutes)} \text{Asp} \text{Asp} \text{Asp} \text{Proc} \text{Asp} \text{f} \text{obj} \text{FQ} \text{Res} \text{tp} \text{Res} \text{<+telic, +bounded>]]]]]]]]]]]]]]]]]]]]]]]} (Object-movement stranding FQ, movement of <+bounded> PP to [Spec, Asp])
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In short, the asymmetry between (35) and (36) follows from the following two assumptions: (i) whether the locative PP can move alone to [Spec, Asp] or the entire ResP must be pied-piped, and (ii) while the time-frame adverbial is licensed in AspP, the durative adverbial of result state persistence is licensed in ResP whose head has the [+telic, -bounded] feature.

3.3. Anaphor Binding

If the locative DP-$ni$ undergoes overt movement from inside ResP to [Spec, Asp] across the Theme DP in [Spec, Res], as we are claiming, then we predict that an anaphor contained in a locative DP-$ni$ can be bounded by the coindexed Theme DP even if the latter does not c-command the former in the overt syntax. On the other hand, we predict that an anaphor contained in an Instrumental DP-$de$, which we can reasonably assume is adjoined to InitP, cannot be bounded by the coindexed Theme DP. This prediction is indeed borne out:

(40) a. Watashi-wa [otagai-no heya]-ni Taroo to Jiroo-o ire-ta.
    I-Top each other’s room-NI Taroo and Jiroo-Acc put-Past
    ‘I put Taroo and Jiroo into each other’s room.’

b.*Watashi-wa [otagai-no tsue]-de Taroo to Jiroo-o tatai-ta.
    I-Top each other’s stick-with Taroo and Jiroo-Acc hit-Past
    ‘I hit Taroo and Jiroo with each other’s sticks.’

Under our assumptions, the well-formedness of (40a) can be assimilated with that of (41a,b) (the so-called “connectivity effect”), and the ill-formedness of (40b) with that of (41c,d):

(41) a. John threw each other’s newspapers at Sue and Bill. (Pesetsky (1995: 222))
    b. Each other’s remarks annoyed John and Mary. (ibid.: 43)
    c.* I entrusted each other’s children with the adults in the room. (ibid.: 221)
    d.* Each other’s teachers insulted John and Mary. (ibid.: 45)

3.4. Aspectuality and Nominalization

As the final piece of evidence for our proposals, let us return to the fact that locative $ni$ can never be licensed in a nominal phrase in Japanese. Relevant examples are (42a,b):

(42) a. Niwa-ni/de kosumosu-ga saita.
    garden-NI/?DE cosmos-Nom bloomed (= (8b))

b. niwa-de-no/*niwa-ni-no kosumosu-no kaika
    garden-DE-Gen/*garden-NI-Gen cosmos-Gen blooming (= (24))

Given the proposals and assumptions we have made so far, we can attribute the ill-formedness of these sentences to the following assumption:

(43) In a nominal phase in Japanese, the AspP which could license a locative $ni$-phrase is not permitted.
We will argue that this is not a universal syntactic prohibition but is a condition specific to the Japanese syntax. Note that event nominals in English are derived from a verb or an adjective by a nominalizing suffix. Grimshaw (1990) suggests that the complex event nominal, which she proposes as a subtype of process nominal which can be modified by an aspectual adjective, must realize its internal arguments obligatorily, as in (44):

(44) a. The frequent expression *(of one’s feeling) is desirable. (ibid.: 50)
    b. The constant assignment *(of unsolvable problems) is to be avoided.

Fu, Roeper and Borer (2001) provide a convincing argument that the process nominals, unlike the result nominals, are syntactically derived via the overt head-movement of a verb to a nominalizing suffix, as in (45a,b) (cf. also Ogawa (2001)):

(45) a. \[DP \quad D \quad [NP N (-ation)] \quad [VP DP (Agent) \quad [V' \quad V (investigate) \quad DP (Theme)]]]]
    b. \[DP \quad DP (Agent) \quad D \quad [NP V+N (investigation)] \quad [VP \quad t_{DP (Agent)} \quad [V' \quad t_v (of) \quad DP (Theme)]]]]

Their evidence for this proposal is two-fold, as in (46a,b); evidence for (46a) and (46b) is illustrated in (47a) and (47b), respectively:

(46) a. Only the process nominals can cooccur with VP-adverbs.
    b. Only the process nominals can be the antecedent of a do so anaphora, which must take a VP as its antecedent.

(47) a. John’s resignation suddenly and Bill’s doing so too
    (resignation = process nominal derived from V)
    b. *John’s trip and Bill’s doing so too /*John’s trip quickly
    (trip = underived nominal)

Combining Grimshaw’s (1990) observation and Fu, Roeper and Borer’s (2001) observations with our own proposals, we will have the full syntactic structure of a process nominal based on a telic verb, as in (48):

(48) a. \[DP \quad D \quad [NP N (-ation)] \quad [INIT \quad INIT \quad ASP \quad ASP \quad PROC \quad PROC \quad RES \quad NP \quad [RES \quad EXAMINE \quad AP/PP]]]]]]
    (nominalization based on accomplishments)
    b. \[DP \quad DP (Agent) \quad D \quad [NP RES+PROC+ASP+INIT \quad +N (examination)] \quad [INIT \quad t_{INIT} \quad ASP \quad ASP \quad PROC \quad PROC \quad RES \quad NP \quad [t_{RES} \quad AP/PP]]]]]]
    (after the cyclic head-movement of Res to N)

Here, we are assuming that Asp has an uninterpretable [+bounded] feature that needs to be checked against a [+bounded] feature of a DP or a PP (or the ResP containing both the DP and the PP9), and that the PP is moved to [Spec, Asp] when it measures out the event denoted by the verb. In English, the checking is successful because a process nominal phrase in this language dominates AspP, to whose Spec the locative PP can move to check the

9 We assume that this pied-piping of ResP takes place in the case of resultative construction, too. Recall the contrast in (20), which shows that resultative AP/PPs do not move to [Spec, Asp] by itself. Note in this context that the resultative construction in Japanese cannot be nominalized either:

(i) a. Taroo-nomi kabe-o makka-ni nutta
    ‘Taro painted the wall really red.’
    b. *Taroo-ni-yoru kabe-no makka-ni-no nuri-kata
    ‘the way Taroo paints the wall really red’
uninterpretable [+bounded] feature of Asp (although there is no evidence that the checking takes place in English, since there is no morphological manifestation on the Locative PP).

On the other hand, a process nominal in Japanese is not morphologically deverbal but a verbal noun (VN), and hence it cannot be derived by concatenating a verbal projection with N. Note here that AspP is a verbal functional category. Then, it is natural to claim that, unless a VN is verbalized by the suffixal –suru ‘do,’ it cannot project up to AspP (or TP). This assumption enables us to explain the ill-formedness of (24) and (25) when the locative PP is headed by ni: the locative ni is excluded here because the Japanese DP headed by a VN does not dominate an AspP to whose Spec it could move; rather, (42b) has the structure in (49):

\[
\begin{array}{c}
\text{DP} [\text{VNP} \text{ DP (kosumosu-no) } [\text{VN} (\text{niwa-de-no/*niwa-ni-no}) \text{ PP (kaika))}]] \text{ D}
\end{array}
\]

By contrast, the locative de can be licensed in the same position in (49), because these phrases is not required to move to [Spec, Asp].

In short, we have argued that a ni-phrase is excluded in a nominal phase in Japanese, because the DP in Japanese does not dominate AspP, even if it is based on a process nominal. We can motivate this assumption from the fact that the process nominal in Japanese is not deverbal but is based on a verbal noun, which does not project up to AspP unless it is verbalized in advance.

4. Conclusion

Building on Ramchand’s (2008) first phase syntax, we have argued that in Japanese there are at least two different types of locative expressions which are licensed in different syntactic positions: one is the locative ni-phrase, which must be licensed in [Spec, Asp] or a stative (i.e. [-bounded]) ResP, and the other is the locative de-phrase, which can be licensed elsewhere. Moreover, we have suggested that the elements which are licensed in [Spec, Asp] are not limited to the locative ni-phrase but a resultative ni-phrase is another candidate, although the latter seems to pied-pipe the entire ResP containing it and the direct object DP in its Spec.

We have argued, as an extension of Thompson’s (2006) and Ramchand’s (2008) proposals, that while the time-frame adverbial is syntactically licensed in AspP, the durative adverbial is licensed in either ProcP or ResP, depending on whether it modifies the temporal interval over which the process continues or it modifies the temporal interval over which the result state created by a telic event persists. We have argued that the Res which licenses the durative adverbial or a resultative predicate is featurally specified as [+telic, -bounded], and the [+bounded] feature on the entire ResP is fed from the bounded DP in its specifier, so that the entire ResP moves to [Spec, Asp]. This dual nature of the featural specification of the head of ResP enabled us to explain an asymmetry in the (im)possibility of the word orders of Theme DP-o Locative DP-ni FQ V and of *Theme DP-o Resultative DP-ni FQ V.

Our proposals in this paper have three theoretical consequences. First, Thompson (2006) claims that a time-frame adverbial, which is only compatible with a telic event, is syntactically licensed in a position higher than where a durative adverbial is licensed. Similarly, our claim is that a locative ni-phrase, which measures out an event, is licensed in a position higher than where a locative de-phrase is licensed. These correlations between the temporal and locative adverbials could not be a coincidence, given Kratzer’s (1996) claim that the spatio-temporal arguments are licensed by one and the same event argument. Second, to the extent that the functional category of AspP plays an important role in Japanese too, we may have to reconsider Fukui and Sakai’s (2003) thesis that functional categories, if any, are syntactically inactive in Japanese. Third, there is the possibility to place our claim that the locative postposition ni is a morphological manifestation of telicity in the context of
“secondary grammaticalization” from Case markers to tense/aspect (TA) markers (cf. Hopper and Traugott (2003)). As for the tense marker, Evans (1995) suggests that some nominal Case markers in the Australian language Kayardild have a secondary use (called the “modal” use by Evans) in which their primary function is to indicate tense/mood. More specifically, temporal information in this language is sometimes encoded both by verbal inflection and by the modal *proprietary/ablative* Case marker on a DP, and otherwise (e.g. in the case of potential verbal inflection), exclusively by the modal *proprietary/locative* Case markers on a DP (and an adverb), as in (50):

   1sg.Nom see-Neg.POT sea-MProp tomorrow-MProp
   ‘I won’t be able to see the sea (tomorrow).’

   1sg.Nom see-Neg.POT sea-MLoc tomorrow-MLoc
   ‘I could not see the sea (yesterday).’

Nicolle (2012: 373) identifies these modal Case markers as a result of secondary grammaticalization from Case markers to tense/aspect (TA) markers. In a similar vein, we could argue that the locative postposition *ni* that cooccurs with a telic predicate is identified with another instance of secondary grammaticalization from Case markers to TA markers. For the lack of diachronic evidence, however, we will leave an in-depth exploration of this possibility for future research.

**References**


