Bipolar items

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Abstract
This article asserts that the Japanese wide–scope *mo* 'even' in simple sentences are bipolar items (BPIs) antilicensed or forbidden by negation and licensed in a non–monotonic (NM) environment. BPIs share the features of negative polarity items (NPIs) as well as positive polarity items (PPIs). The Dutch *ooit* 'ever', the Serbo-Croatian *i*–series 'and/even', and the Hungarian *is*–series 'and/even' are antilicensed by clausemate negation and licensed by extra-clausal negation (van der Wouden, 1997; Progovac, 1994; Szabolcsi, 2002) or non–monotonic negative (and positive, for Serbo-Croatian) emotive predicates. Adding an NPI rescues BPIs in uncomfortable clausemate negation.

1. Bipolar Items
1.1 NPIs and PPIs of different strength
It is well known that negative polarity items (NPIs) are licensed in the scope of downward entailing (DE) environments (Fauconnier, 1975a; 1975b; Ladusaw, 1979).[1] For example, in (1a), the NPI *budge an inch* is licensed by *not*, which is strongly negative, because the omission of *not* makes it ungrammatical (1b). On the contrary, in (2), positive polarity items (PPIs) such as *already* are anti–licensed and ungrammatical in a negative environment (Baker, 1970).

  (1) a. John did not budge an inch.
       b.*John budged an inch.

  (2) a. Simon has already arrived.
       b.*Simon has not already arrived.

It has been observed that negative environments are classified into strong, medium and weak negativity (Zwarts, 1996; 1998). Anti–morphic (AM) determiners or noun phrases are strongly negative, anti-additive (AA) or anti–multiplicative (MP) expressions are medium negative, and monotone decreasing (MD) scope is weakly negative. Anti–morphism (AM) is De Morgan negation, which is a combination of anti–additivity (AA) and anti-multiplicativity (MP).

Below I explain and exemplify AA, AM, MD, and MP cases in turn. For example, *few* is a monotonically, or constantly decreasing,

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[1] For example, the NPI *any* is licensed in the scope of the downward entailing operator *no fisherman*. The statement *no fisherman caught any fish* semantically entails *no fisherman caught any trout* whose predicate is more restrictive, as in (ia), but the latter does not entail the former in (ib). *No* itself is also a downward entailing operator as shown in (ii).

(i) a. No fisherman caught any fish.
    |= No fisherman caught any trout.
    b. No fisherman caught any trout.
    |≠ No fisherman caught any fish.
(ii) a. No fisherman caught fish.
    |= No Sunday fisherman caught fish.
    b. No Sunday fisherman caught fish.
    |≠ No fisherman caught fish.

quantifier so that *few dogs jump* entails *few poodles jump.* In other words, *few* preserves the truth value for the subset of the set represented by the noun phrase in the scope. On the other hand, *some* is a monotonically increasing operator so that *some days are cloudy* entails *some months are cloudy*, but not vice versa. On the other hand, *never* is AA in that *it never stops raining or snowing* entails *it never stops raining and it never stops snowing* and vice versa. *Not* is AM, which is the combination of AA and MP so that *Mary did not sing and dance* is true if and only if *Mary did not sing or Mary did not dance*. Moreover, *Mary did not sing or dance* is equivalent to *Mary did not sing and Mary did not dance*.

(3) Monotone decreasingness (MD):
Let B be a Boolean algebra. A quantifier Q on B is said to be monotone decreasing iff for each two elements X and Y of the algebra B: if X∈Q and Y⊆X, then Y∈Q.

(4) Anti-additivity (AA):
Let B and B* be two Boolean algebras. A function f from B to B* is said to be anti-additive iff for each two elements X and Y of the algebra B: f(X∪Y)=f(X)∩f(Y)

(5) Anti-multiplicativity (MP):
Let B and B* be two Boolean algebras. A function f from B to B* is said to be antimultiplicative iff for each two elements X and Y of the algebra B: f(X∩Y)=f(X)∪f(Y)

(Zwarts, 1996)

In addition, I define the NM scope, which is neither MD nor monotone increasing, in (6).

(6) Non-monotonicity (NM):
Let B be a Boolean algebra. A quantifier Q on B is said to be non-monotonic iff for each two elements X and Y of the algebra B: if X∈Q and Y⊆X, then Y∉Q, and if X∈Q and X⊆Y, then Y∉Q.

Crucially, there are different levels of strength among NPIs and PPIs, namely, strong, medium and weak PIs. Weak NPIs such as *any*, *ever* and the Romanian indefinite *vreun* can be licensed in a DE

context including monotone decreasing (MD), anti-additive (AA), anti-multiplicative (AP), anti-morphic (AM) and also in a non-monotonic (NM) context (Nishiguchi 2003; 2004; Fǎlǎuş, 2014). On the other hand, NPIs of medium strength are licensed only in AA and AM contexts and are ungrammatical in MD sentences. Strong NPIs are the most demanding of the three – they live exclusively in AM environments.

1.2 BPIs

With respect to BPIs, the Dutch *ooit* 'ever', the Serbo-Croatian *i*-series 'also/even' and the Hungarian *is*-series 'and/even' demonstrate NPI-hood by being licensed in medium and weak negative environments but demonstrate PPI-hood when anti-licensed by strong clausemate negation (Szabolcsi p.c.; van der Wouden, 1997; Progovac, 1994; Szabolcsi, 2002). The crucial difference between weak NPIs and BPIs is that the latter dislikes strong negative contexts while the former likes them. Both, however, are licensed by weak and medium negation.

1.2.1 Dutch *Ooit*

The Dutch *ooit* 'ever' requires weak or medium negativity but is averse to anti-morphic environments displayed in (7). *Ooit* requires the negative context as shown in (7a) and can be licensed in either the AA or MD context in (7b) and (7c), respectively. However, the AM environment fails to license *ooit* as in (7d). *Ooit* in the embedded clause can be licensed by the negation in the matrix clause in (8).

(7) a. *Een van de kinderen
One of the children
gaat ooit bij oma op ezoek.
goes ever with granny on visit.

b. Geen van de kinderen gaat ooit
None of the children goes ever
bij oma op bezoek.
with granny on visit.
'None of the children ever visits granny.'

(AA)

c. Weinig kinderen gaan ooit bij
Few children go ever with
oma op bezoek.
granny on visit.

'Few children ever visit granny.'

                             (MD)

d. *Een van de kinderen gaat niet
   One of the children goes not
   ooit bij oma op bezoek.
   ever with granny on visit
   (AM; van der Wouden, 1994, p.57)

(8) Het is niet zo dat een van de
   It is not so that one of the
   kinderen ooit bij oma op
   children ever with granny on
   bezoek gaat.
   visit goes
   'It is not the case that one of the
   children ever visits granny.'
   (van der Wouden, 1997, p.133)

Hoeksema (1998) discusses the current loss of the polarity sensitivity of *ooit*. According to his observations, *ooit* has become ambiguous between the NPI *ooit* and the non-sensitive *ooit*, which is also used as an existential temporal adverb nowadays. The latter appears in non-negative contexts.

(9) a. Jan heft het ooit geweten.
   Jan has it once known
   'Jan once knew it.'
   b. Hier stond ooit een molen.
   Here stood once a mill
   'A mill stood here, once.'

Jack Hoeksema also pointed out, at the Swarthmore Workshop on Negation and Polarity in 2006, that it is the Blocking Effect (Aronoff, 1976) that makes *ooit* ungrammatical in a strong negative context. The presence of another lexical item *nooit* blocks *ooit* from a strong negative context. However, van der Wouden (1997) argues that *ooit* also dislikes anti-morphic operators such as *allesbehalve* 'anything but' and *allerminst* 'not at all' in addition to *niet*.

(10) a. *Een van de kinderen gaat
   One of the children goes
   allesbehalve ooit
   anything.but ever
   bij oma op bezoek.
   with granny on visit
   b. *Een van de kinderen gaat
   One of the children goes

allerminst ooit
not.at.all ever
bij oma op bezoek.
with granny on visit

The embedded clause under the AM matrix clause is AA (van der Wouden, 1997). In (11a), *Mary did not say* can be interpreted to be the function f, whose argument contains disjunction. If this proposition is true, then the sentential conjunction of f with each disjunct is true in the same model, and vice versa. However, f with conjunction does not entail the sentential disjunction in (11b), which demonstrates AA property in the embedded clause.

(11) a. Mary did not say she went to
   Spain or Italy.
   <-> Mary did not say she went to
   Spain and Mary did not say she
   went to Italy.

   b. Mary did not say she went to
   Spain and Italy.
   -/> Mary did not say she went to
   Spain or Mary did not say she
   went to Italy.

1.2.2 Hungarian and Serbo-Croatian

Similarly, the Hungarian *is*-series 'also/even' and the Serbo-Croatian *i*-NPIs are ungrammatical with clausemate anti-morphic negation. In the Hungarian data in (12a), *is* 'also/even' is ungrammatical in the AM context. In contrast, the MD and AA context in the embedded clause under negation license is as shown in (12b) and, (12c).

(12) a. *Nem értettél valamit
   not understood-you something
   is.
   also/even
   'You didn't understand anything.'
   (Hungarian, AM)

   b. Kevés ember értett
   few people understood
   valamit is.
   something also/even
   'Few people understood anything.'
   (MD)

c. Nem hiszem, hogy valamit
　 not think-I that something
　 is 　　　　 értettél.
　 also/even 　understood-you
　 'I don't think that you
　 understood anything.'
　 (Extra-clausal AM, Szabolcsi p.c.)

Likewise, the Serbo-Croatian *i*–'also/even' series require negation in the matrix clause as in (13a) but clausemate negation is not acceptable in (13b).

(13) a. Milan *(ne) tvrdi 　da 　Marija
　　　 Milan 　not 　claims that Mary
　　　 poznaje i(t)ko-ga.
　　　 knows 　anyone-ACC
　　　 'Milan (does not) claims that Mary
　　　 knows anyone.'

　　 b. *Marija ne 　poznaje i(t)ko-ga.
　　　 Mary 　not know anyone-ACC
　　　 'Mary does not know anyone.'
　　　 (Progovac, 1994, p.42)

AM negation in the matrix clause creates the AA context in the embedded clause (van der Wouden, 1994, p.58).

(14) a. I did not say that Mary had
　　　 arrived yet.
　　 b. *Nobody said that Mary had
　　　 arrived yet.
　　 c. *Few people said that Mary had
　　　 arrived yet.

Thus, BPIs in Dutch, Hungarian and Serbo-Croatian require an MD or AA context and are anti-licensed by a strongly positive context.

2. BPI Licensing in the non-monotonic scope of emotive predicates

Licensers of BPIs are not limited to the AA or MD contexts, such as extra-clausal negation and clausemate medium or weak negation. Negative emotives such as *regret* and *doubt* license BPIs in Dutch and Hungarian, as given in (15). The Serbo-Croatian data in (16) indicates that not only negative but also positive attitude predicates license BPIs in the embedded clause.

(15) a. Ik betreur (het) dat
　　　 I regret 　it 　that

　　　 ik dat 　ooit gedaen heb.
　　　 I 　that ever done 　have
　　　 'I regret what I have ever done.'
　　　 (Dutch, den Dikken p.c.)

　　 b. Sajnálom, hogy valamit
　　　 regret-I 　that something-ACC
　　　 is 　　　　 adtam neki.
　　　 also/even gave-I to-him
　　　 'I regret that I gave him
　　　 anything.'
　　　 (Hungarian, Szabolcsi p.c.)

(16) a. Sumnja-m da 　　 Milan voli
　　　 doubt-1SG that 　　Milan loves
　　　 i(t)ko-ga./*ni(t)ko-ga.
　　　 anyone-ACC /no-one-ACC
　　　 'I doubt that Milan loves anyone.'
　　　 (Progovac, 1994, p.64)

　　 b. Sretan sam 　da 　Milan
　　　 happy be.1SG that 　Milan
　　　 i(t)ko-ga 　　voli.
　　　 anyone-ACC loves
　　　 'I am happy that Milan loves
　　　 anyone.'

The monotonicity of emotive predicates such as *doubt*, *be happy*, *be surprised*, and *regret* has posed a problem in Fauconnier-Ladusaw's DE analysis of NPI licensing contexts, because these attitude predicates are not straightforward DE (Asher, 1987; Heim, 1992; von Fintel, 1999). For instance, *I am happy that Mary bought a car* does not imply *I am happy that Mary bought a Honda*, since the car Mary bought could be a Toyota. Similarly, the latter does not imply the former, for the speaker could be happy about the Honda and not necessarily glad that Mary spent money on a new car.

(17) a. I am happy that Mary bought a
　　　 car.
$<-/->$ b. I am happy that Mary bought a
　　　 Honda.

Without additional devices such as a weakened DE (Asher, 1987) or Strawson DEness (von Fintel, 1999), attitude predicates are non-monotonic. Both the weakened DE and the Strawson Entailment add additional assumptions such that the complement clause of the conclusion is also believed.

(18) I am happy that Mary bought a car.
Mary bought a Honda.

∴ I am happy that Mary bought a Honda

Thus far, we have seen that BPI licensing ranges from AA and MD to the NM context. BPIs dislike clausemate negation which is AM, and demand weak or medium negative contexts, which are MD and AA, respectively. Extra-clausal negation and superordinate emotive predicates can also license BPIs in their AA or NM scope. While Dutch and Hungarian BPIs are only licensed by negative emotives, Serbo-Croatian BPIs can be licensed by positive emotives.

3. Wide-scope *even* and non monotonicity

The Japanese wide-scope *mo* 'also/even' behaves as BPIs when anti-licensed by clausemate negation or licensed in monotone decreasing contexts. Wide-scope *even* sentences are simple sentences embedded under implicit emotives such as *be sorry*, *regret*, or *be happy*.

3.1 Wide-scope sentence focus *mo* 'even' in Japanese

The Japanese additive *mo* 'also/even' typically scopes over the noun phrase and requires an explicit antecedent, as does the English additive *also/too*; for example, *John* is the antecedent of *Mary* in *John came, and Mary came too* (see (19) for the same example in Japanese). The meaning of 'even' appears when *mo* 'also/even' attaches to a noun phrase that refers to a scalar endpoint; for instance, in (20), *John* is the least likely person to come.

(19) John-ga ki-te,   Mary-mo
John-NOM come-and Mary-also
ki-ta.
come-PAST
'John came and so did Mary.'

(20) a. (Surprisingly,) JOHN-mo ki-ta.
John-even come-PAST
'Even John came.'

b. *JOHN-mo ko-nakat-ta.
(AM)
John-even come-NEG-PAST
'Even John did not come.'

When *mo* attaches to *wh*-words, it forms *any*-type strong NPIs (Kato, 1985; Kato, 2000; Nam, 1994) or negative concord items (Watanabe, 2004).[2]

(21) Dare-mo   ko-nakat-ta. (AM)
who-also   come-NEG-PAST
'Nobody came.'

(22) a. *Dare-mo torihiki-o
kyozetsusuru.   (AA)
who-also deal-ACC
refuse
'Anyone refuses a deal.'

b. Dare-mo   torihiki-o
kyozetsushi-nai.   (AM)
who-also deal-ACC
refuse-NEG
'Nobody refuses to raise hand.'

(23) a. *Seizei 5-nin-ga   ani-mo
iu.   (MD)
at most 5-CL-NOM what-also
say
'At most five people say anything.'

b. ?Seizei 5-nin-ga nani-mo
iwa-nai.   (AM)
at most 5-CL-NOM what-also
say-NEG
'At most five people say nothing.'

When *mo* 'even' attaches to a scalar endpoint, NP-*mo* is a minimizer weak NPI.

(24) a. Hito-ri-mo ko-nakat-ta. (AM)
1-CL-even come-NEG-PAST
'Nobody came.'

b. #Hitori-mo ki-ta.
1-CL-even come-PAST
'Even one person came.'

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[2] Japanese grammarians have considered *mo* polysemous (Sadanobu 1997).

(25) a. Sukoshi-mo nai.　　　(AM)
　　　little-even　NEG
　　　'There is nothing.'
　　b. *Sukoshi-mo aru.
　　　little-even　exist
　　　'There is little.'

(26) a. Menkai-wa hito-ri-mo
　　　kyozetsusuru.　　　　(AA)
　　　visit-TOP 1-CL-even
　　　refuse
　　　'Any visitors are refused.'

　　b. Denwa ip-pon-mo
　　　kyozetsusuru.　　　(AA)
　　　Phone 1-CL-even
　　　refuse
　　　'(He) refuses even a single
　　　phone call.'

There is a wide-scope *mo* 'even' given in (27b) and (28). Numata (2000) claims that this *mo* 'also/even' takes a wide scope over a proposition and triggers presupposed implicit events. This *mo* can appear unexpectedly discourse-initially, and does not require a discourse antecedent.

(27) a. Shikuramen-mo karete-ki-ta.
　　　(narrow scope *mo*)
　　　cyclamen-even wither-ASP-PAST
　　　'Even cyclamens come to wither.'

　　b. Shikuramen-mo karete-ki-ta.
　　　Mo haru-da.
　　　cyclamen-even wither-ASP-PAST
　　　already　　　spring-DECL
　　　'Even cyclamens have withered.
　　　Spring has already come.'
　　　(wide scope *mo*)

(28) a. Yo-mo　　　fukete-ki-ta.
　　　night-even　late-become-PAST
　　　Mo　　　　neru-toshi-yo.
　　　already　　sleep-COMP do-will
　　　'It has become late (at night).
　　　It's time to go to bed.'

　　b. Ko-no saifu-mo
　　　this-GEN wallet-even

furuku-nat-ta.
old-become-PAST
'This wallet has become old.'

c. Mari-mo　　kashiko-i.
　Mari-even　smart-be
　'Mary is indeed smart.'

d. Soto-mo　　　hiete-ki-ta.
　outside-even cold-ASP-PAST
　'It has become cold outside.'

e. Tabi-mo owari-ni
　trip-even end-to
　chikazuite-ki-ta.
　approach-ASP-PAST
　'The trip is coming to an end.'

f. Omae-mo aho-ya-na.
　you-even silly-DECL-EXC
　'You are indeed silly.'

I consider this *mo* to be the wide-scope *even*,[3] while this *mo* has been considered by others to mean *also* (Yamamori, 2014). (27a) and (27b) can be represented as in (29).

(29) a. Even [cyclamens]F have withered.
　　　(Narrow scope *even*)
　　b. The cyclamens have even
　　　withered. (Presentational focus
　　　wide scope *even*)
　　　Even [the cyclamens have
　　　withered]F

If we consider this *mo* to be a wide-scope *even*, Rooth's (1987) focus semantics derives focus alternatives from *mo*-sentences. Rooth (1987) discussed the wide-scope or sentential scope *even*. *Even* in English associates with a phrase α if and only if *even* c-commands α (Rooth, 1987, p.92; Jackendoff, 1972, p.249). While *mo* does not require a c-commanding relation, Rooth's ILF style translation in (30) yields conventional implicature that there is another unlikely proposition in the context set, for example, the weather has become even warmer, or tulips have even started to bloom.

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[3] I would like to thank the reviewers of Dgfs37 AG 9: Varieties of Positive Polarity Items for making me aware of this.

(30) F$_{even,t}$ (withered'([cyclamens]$_F$) =
∃p[C(p) & $^\vee$P & p ≠
$^\wedge$withered'([cyclamens]$_F$ &
unlikely'(p)) &
withered'([cyclamens]$_F$)

On the other hand, the scalar implicature for both the narrow- and wide-scope *mo* can be provided, following the work of Karttunen and Peters (1979).

(31) Focus of DP focus narrow scope *even*: [cyclamens]

(32) Focus of wide-scope *even*: [cyclamens have withered] (sentence-focus)

(33) Scope of wide-scope *even*: x has withered

(34) Existential implicature for narrow-scope *even*: there are other x under consideration besides cyclamens such that x has withered.

(35) Scalar implicature for narrow-scope *even*: for all x under consideration besides cyclamens, the likelihood that x has withered is greater than the likelihood that cyclamens have withered.

(36) Existential implicature for wide-scope *even*: there are other p under consideration besides p.

(37) Scalar implicature for wide-scope *even*: for all p under consideration besides cyclamens have withered, the likelihood for p is greater than the likelihood that cyclamens have withered.

(38) The scalar implicature of the wide-scope *mo* sentence is that cyclamens have withered is most unlikely compared to other occurrences such as warmer weather.

Both the focus alternatives in Rooth (1987) and the scalar implicature of Karttunen and Peters (1979) work for the wide-scope *mo*. This *mo* has sentence-focus structures in the sense of Lambrecht (1994). As an answer to the question what happened, the entire proposition my car broke down is new information and is therefore focused on.

(39) a. What happened?
       My CAR broke down.
    b. Presupposition: _
    c. Assertion: 'speaker's car broke down'
    d. Focus domain: 'speaker's car broke down'
    e. Focus: S
       (Lambrecht, 1994, p.233)

The discourse-initial *mo* is a BPI that shows PPI-hood when anti-licensed by clausemate negation, as in (40a), (41a), and (42)–(44). Moreover, the wide-scope *mo* is licensed in extra-clausal strong negation that makes the embedded clause AA in (40b) and (41b); MD numeral, *at most n* (45); AA environment in (46); and NM emotives as in (47).

(40) AM a. *Yo-mo   sue-ja-nai.
            world-even end-be-NEG
            'This is not the end of the world.'

     AA b. Yo-mo   sue-da-to-
            world-even, end-be-COMP-
            iu- koto-wa-nai.
            say-fact-TOP-NEG
            'It is not true that this is the end of the world.'[4]

(41) a. *Tabi-mo   owari-ni
         trip-even end-DAT
         chikazuite-ko-nai.
         approach-ASP-NEG

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[4] As mentioned earlier, the embedded clause under AM negation in the matrix clause is AA, and not antimultiplicative or AM, as pointed out by van der Wouden.
(i)   It is not right that drivers or bikers turn left here.
–>   It is not right that drivers turn left here and it is not right that bikers turn left here.
(ii)   It is not right that drivers and bikers turn left here
–/–>   It is not right that drivers turn left here or it is not right that drivers turn left here.

'The trip is not drawing to an end.'

b. Tabi-mo owari-ni
trip-even end-DAT
chikazuite-ki-ta-wake-demo-nai.
approach-ASP-PAST-reason-be-NEG
'It is not that the trip is drawing to an end.'

(42) *Shikuramen-mo
cyclamen-even
karete-ko-nakat-ta.
wither-ASP-NEG-PAST

(43) *Mari-mo kashikoku-nai.
Mari-even smart-NEG

(44) *Kono saifu-mo
this wallet-even
furuku-nar-anat-ta.
old-become- NEG-PAST

(45) MD Seizei 5-nin-no gakusei-mo
at most 5-CL-GEN student-even
ganbat-ta.
do.one's.best-PAST
'At most five students did their best.'[5]

(46) AA Moshi tabi-mo owari-ni

If trip-even end-GOAL
chikazuita-nara ii-noni.
near-then good-but
'I wish the trip was coming to an end.'[6]

(47) NM a. Yo-mo fukete-ki-te
night-even late-become-PAST.and
zannen-da.
regretful-be
'I am sorry that it's late (at night).'

b. Shikuramen-mo
cyclamen-even
karete-ki-te kanashii.
wither-come-PAST.and sad
'I am sad the cyclamens have withered.'

Even though the typical *mo*-sentences of this sort are simple declarative sentences, the speaker's sentimental emotions, either negative or positive, are indispensable. As such, emotives create NM scope, and *mo*-sentences are licensed in a covertly NM environment.

(48) a. (Zannenna-koto-ni) yo-mo
regretful-fact-GOAL night-even
fukete-ki-ta. [7]

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[6] *Moshi...nara*, the conditional *if*-clause in Japanese is AA (Yoshimura, p.1999).

(i) Moshi ame-ka yuki-ga
futta-nara asu-wa
yasumi-da.
if rain-or snow-NOM drop-then
tomorrow-TOP off-DECL
'If it rains or snows, we will be off tomorrow.'
->Moshi ame-ga futta-nara asu-wa yasumi-da-shi, moshi yuki-ga futtemo asu-wa yasumi-da.
'If it rains, we will be off tomorrow and if it snows, we will be off too'

(ii) Moshi ame-to yuki-ga futta-nara asu-wa
yasumi-da.
if rain-and snow-NOM drop-then
tomorrow-TOP off-DECL
'If it rains and snows, we will be off tomorrow.'
-/->Moshi ame-ga furu-nara asu-wa yasumi-ka, moshi yuki-ga futtaraasu-wa yasumi-ka-da.

'If it rains, we will be off tomorrow or if it snows, we will be off tomorrow.'
[7] The scope of *zannenna-koto-ni* 'regretably/unfortunately' is NM:

(i) Zannenna-koto-ni ame-to yuki-ga fut-teki-ta.
regret-fact-DAT rain-and snow-NOM fall-ASP-PAST
'Regrettably it started to rain and snow.'
<-/-> Zannenna-koto-ni ame-ga fut-teki-ta-ka, yuki-ga fut-teki-ta.
regret-fact-DAT rain-NOM fall-ASP-PAST-or snow-NOM fall-ASP-PAST
'Regrettably it started to rain or it started to snow.'

(ii) Zannenna-koto-ni ame-ka yuki-ga fut-teki-ta.
<-/-> Zannenna-koto-ni ame-ga fut-teki-te, yuki-mo
regret-fact-DAT rain-NOM fall-ASP-PAST-and snow-also
fut-teki-ta.
fall-ASP-PAST

late-become-PAST
'(I am sorry that) it has become late (at night).'

b. (Shimijimi-to)   Ko-no
heartily-COMP this-GEN
saifu-mo furuku-nat-ta.
wallet-even old-become PAST
'(Heartily) This wallet has become old.'

(49) (Ureshii-koto-ni)   haru-
(happy-fact-GOAL) spring-even
motakenawa-ni nari-mashi-ta.[8]
peak-GOAL become-HON-PAST
'(I'm glad that) spring has reached its peak.'

(50) Scalar implicature: for all situations s under consideration besides the one that spring has reached its peak, the likelihood for s greater than the likelihood that spring reached its peak. (cf., Karttunen and Peters, 1979)

Therefore, the BPI licensing environments in Japanese are: (i) downward entailing scope (MD), (ii) extra-clausal antimorphic negation (AA), (iii) extra-clausal non-monotonic emotives (NM), and (iv) covert superordinate emotives (NM). Covert superordinate emotives are peculiar to Japanese, Korean and Chinese BPIs.

4. Modal-like elements or the NPI rescues BPIs with negation

The insertion of an NPI rescues BPIs in otherwise uncomfortable AM environments, as in (51).[9] Moreover, (52) indicates that the presence of a modal-like element also rescues otherwise uncomfortable BPIs under negation.[10]

(51) Ko-no   saifu-mo #(zenzen/amari)
tsukawa-nakat-ta.
this-GEN wallet-even at all/much
use-NEG-PAST
'I have not used this wallet at

all/much.'

(52) a. Kare-mo kekkon-seikatsu-mo
he-even marriage-life-also
umaku ika-nakat-ta-ne.
well go-NEG-PAST-PAR
'His married life did not go well, did it?'

b. Kono hon-mo yoku
this book-even well
wakara-nakat-ta-ne.
can.understand-NEG-PAST-PAR
'This book was also hard to understand, wasn't it?'

c. Ano baito-mo tsukae-nakat-ta.
that part-time-worker-even
can.use-NEG-PAST
'That part-time worker was not usable, either.'

Example (51) indicates that the NPI *zenzen/amari* improves the grammaticality of the sentence with the BPI anti-licensed by AM negation. In (52), the presence of non-monotonic modal-like elements licenses the illegitimate clausemate BPI.

5. BPI Licensing Contexts

In view of the previous data, BPI licensers are either MD, AA, extra-clausal AM negation, or NM explicit/implicit emotives; therefore, BPI licensing contexts can be summarized as follows:

(53) a. [MD...BPI...]
b. [AA...BPI...]
(Dutch)
c. $NEG_{antimorphic}[AA_{CP}...BPI...]$
d. *[$NEG_{antimorphic}$...BPI...]
e. $\pm (PRED_{emotive})[_{CP}...BPI...]$
(Japanese)
f. $\pm PRED_{emotive}[_{CP}...BPI...]$
(Serbo-Croatian, Japanese)
g. $-PRED_{emotive}[_{CP}...BPI...]$
(Dutch, Hungarian)
(MD: monotone decreasing, AA: anti-additive, PRED: predicate,

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'Regrettably it started to rain and it started to snow as well.'

[8] The body of this sentence is taken from Numata (2000), even though Numata does not discuss speaker attitudes towards the

propositions.
[9] I thank Heejeong Ko for bringing this to my attention.
[10] Thanks to Hiroshi Mito for suggesting example (52).

+: positive, -: negative, ( ):
implicit)

As shown in (53a,b), BPIs can be licensed in MD or AA context, or by AM negation in the matrix clause which makes the embedded clause AA, as in (53c). BPIs dislike the AM environment as in (53d) while NM positive or negative emotives license them in the embedded clause, when they are implicit as in (53e) or explicit in (53f). Some languages allow only negative emotives to be the BPI licensers as in (53g).

Conclusion
This article discussed BPIs – which share the features of both NPIs and PPIs. As NPIs, BPIs are licensed in AA and MD contexts. As PPIs, BPIs are ungrammatical with clausemate negation. BPIs are licensed by extra-clausal explicit or implicit NM factive emotives as well as superordinate negation. Adding an NPI rescues BPIs in clausemate negation.

The presence of such BPIs makes us wonder whether there exist more BPIs in other languages parallel to the NPIs and PPIs widely observed cross-linguistically. Moreover, BPIs ambiguate the borderline between negative and positive polarity, which brings into question the coherent distribution of polarity items.

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