

Connectives, Indeterminates, and Quantificational Variability*

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1. Introduction

It is a well known fact that a number of languages, mainly from East and South Asia form quantificational expressions not (or not exclusively) through the use of determiner-like elements combined with a restrictive expression. Rather, in these languages, a so-called *indeterminate pronoun*¹ (which is homophonous to a *wh* word) combines with a suffixal element, whose nature varies, and thus the indeterminate acquires a particular quantificational force. In this paper we will mainly concentrate on two issues arising from the combination of indeterminates with disjunction and conjunction denoting morphemes, and the particular force taken by the indeterminate through this combination. Our point of departure here is double. First, the observation that the quantificational force acquired by an indeterminate after it has combined with disjunction is not crosslinguistically uniform. On the other hand we also observe that the combination indeterminate + conjunction does have a crosslinguistically consistent meaning (A universal quantifier) but also makes the resulting items sensitive to polarity (again in a crosslinguistically consistent manner). In a nutshell, our argument in this paper, will be that the key to the solution to the second question is provided by an understanding of the first. More specifically, we will argue that the account of disjunction based quantifiers that we have proposed in earlier work, can be easily and beneficially extended to cover conjunction based quantifiers too with some surprising results. The paper is organised as follows. In section 2, we present the basic data. In section 3, we outline the general shape of the account and its underlying intuitions. Section 4 offers an overview of the account of disjunctive quantifiers mainly focusing on the problems posed by the analysis of certain Korean data. Sections 5 and 6 extend the account to cover conjunctive quantifiers and discuss a potential problem with the proposed extension. Section 7 concludes the discussion.

* We would like to thank K.A. Jayaseelan, Chungmin Lee, Satoshi Tomioka, Akira Watanabe, the audience at CSSP and an anonymous reviewer for this volume for comments and discussion. The usual disclaimers apply. This research was made possible through the generous support of the *Arts and Humanities Research Board*, under Grant B/B/RG/AN5827/APN12471 : *Strategies of Quantification*, which is hereby gratefully acknowledged. The authors's names appear alphabetically.

¹A term introduced by Kuroda (1965).

2. The Data²

The combination of indeterminate pronouns and disjunction/conjunction denoting morphemes yields items like the following:

(1) Japanese

- a. Dare - mo
Who - CONJ
'everyone' .
- b. Dare - ka
Who - DISJ
'someone'

(2) Korean

- a. Nwukwu - to
Who/One - CONJ
'everyone'
- b. Nwukwu - na
Who/One - DISJ
'anyone/everyone'

(3) Malayalam

- a. arr-e-um
who-ACC- CONJ
'anyone/everyone'
- b. arr-e-oo
who-ACC- DISJ
'someone'

As can be seen from the above examples a regularity, though not a complete one, can be observed in the above cases. The regularity in question is, of course, reminiscent of the logical equivalences (4) and (5):

$$(4) \quad \exists x(\phi x) \leftrightarrow \phi(x_1) \vee \phi(x_2) \vee \phi(x_3) \vee \phi(x_4) \vee \dots \vee \phi(x_\infty)$$

$$(5) \quad \forall x(\phi x) \leftrightarrow \phi(x_1) \wedge \phi(x_2) \wedge \phi(x_3) \wedge \phi(x_4) \wedge \dots \wedge \phi(x_\infty)$$

The question, of course, remains whether the equivalences above are the right tool for the understanding of the examples (1) – (3). We will leave this question aside now and take it up again in later sections. Two particularly interesting observations here are that first, the pattern observed in Japanese and Malayalam seems not to be fully reproducible in Korean, cf. (2-b).³ At first glance Korean seems to lack the existential quantifier formed by the combination of an indeterminate and disjunction. The second observation is that the quantifiers in (1-a), (2-a) and (3-a) require, in order

² The following abbreviations are used in this paper: NOM(Nominative), ACC (Accusative), DAT (Dative), GEN (Genitive), PERF (Perfective), DE (Declarative Ending), CONJ (Conjunctive), DISJ (Disjunctive), TOP (Topic), NEG (Negative), SUBJ (Subject), DEM (Demonstrative), COP (Copula)

³ Whether or not we are fully justified in our expectation that the pattern should also be reproducible in Korean, is a question which would take us to far afield. Our conjecture is that we are.

to be licensed, to be within the scope of a higher operator. For instance, the examples in (6) show clearly that in affirmative episodic sentences, conjunction based quantifiers are disallowed.

(6) (a) Japanese

*Dare mo sushi o takusan tabeta
 who CONJ sushi ACC a.lot ate
 ‘**Dare-mo* ate Sushi a lot’

(b) Korean

*nwukwu-to ku kos-ey ka-ss-ta
 who- CONJ the place-to go-PAST-DE
 ‘**nwukwu-to* went to that place’

(c) Malayalam

*Sanjay aar-kk-um e.l.uthu ayachu
 Sanjay who-DAT- CONJ letter sent
 ‘*Sanjay sent a letter to *aar-kk-um*’

(d) Chinese⁴

*xiaowang zuowan shenme-ye chi-le
 Xiaowang last.night what- CONJ ate-PERF
 ‘*Xiaowang ate *shenme-ye* last night’

On the other hand, the range of the operators required is a matter of debate. However, negation is clearly included, and in some cases modality too. It should be noted here that although the operators are, broadly speaking, similar to the ones licensing polarity items, the fact that certain of these elements can appear without licensing makes us hesitate to call them “polarity items” and we will keep to the term quantifiers.

(7) Japanese

(a) Taka-wa nani-mo yoku tabe-na-katta
 Taka-TOP what- CONJ well eat-NEG-PAST
 ‘Take ate nothing well’

(b) Reiko-wa hitoride doko-mo ik-eru
 Reiko-TOP alone where- CONJ go-can
 ‘Reiko can go everywhere alone’

(c) Noriko-wa dono hon mo suki-da
 Noriko-TOP which book CONJ likes
 ‘Noriko likes any of these books’

(8) Korean

(a) Chelswu-nun caki sayil-pati-ey nwukwu-to choday halcwiiss-ta
 Chelswu-TOP self birthday-party-to who- CONJ invite can-DE
 ‘Chelswu can invite anyone to his birthday party’

(b) Nwukwu-to ku-uy email-ey dap-haci anh-ass-ta
 anyone- CONJ he-GEN email-to reply-do NEG-PAST-DE
 ‘Nobody replied to his email’

⁴We do not deal directly with Chinese in this paper but Chinese has certain similar constructions, partly illustrated by the following example

- (9) Malayalam
- (a) aar-kk-um innathe meeting-il var-aam
 who-DAT- CONJ today's meeting-to come-can
 'Anybody can come to the today's meeting'
- (b) Anili aar-e-um kant-illa
 Anili who-ACC- CONJ saw-NEG
 'Anili met nobody'

Another intriguing observation in this respect is that the operator-sensitivity of these items is canceled in Japanese when the conjunctive quantifier appears with a case marker:

- (10) Dare-mo ga nani-ka o tabe-te-iru
 who- CONJ NOM what DISJ ACC eating-be
 'Everyone is eating something'

In the remainder of this paper we will try to address these questions to the extent space allows us. Now let us turn to the analysis of the disjunction-based quantifiers and the puzzle from Korean.

3. The general account: an outline

The basic idea at the heart of our approach is the connection that we noted in the introduction between existential and universal quantification and the disjunction/conjunction connectives respectively. We would like to maintain that the conjunction/disjunction morphemes are not quantificational operators which would in some manner confer to the indeterminate pronouns they combine with their quantificational force directly. In other words, Japanese *mo*, *ka*, Korean *to*, *na* and Malayalam *um*, *oo* are not the equivalents of, say, English *every* and *some* and they just happen to be phonologically the same as the morphemes for conjunction and disjunction. Instead, we propose that the morphemes in question are indeed conjunctors and disjunctors and that the quantificational force of the composites is the result of a two stage process. The conjunction/disjunction morphemes are involved in the first stage of this process and their effect is to *unpack* the indeterminate into an infinite set of variables. In other words the indeterminate pronoun will be some kind of meta-variable, ranging over individual variables. We will remain rather vague regarding the precise formal characterisation of this operation for lack of space. Suffice it to note that it is crucial for the rest of the account that after unpacking the result should be a disjunction/conjunction of variables rather than individuals.⁵ Thus applying the operator CONJ to the meta-variable IND: CONJ(IND) we will obtain (11):

$$(11) \quad \text{CONJ(IND)} \leftrightarrow x_1 \wedge x_2 \wedge x_3 \wedge x_4 \wedge \dots \wedge x_\infty$$

Disjunction will proceed in a similar manner. It follows then, given that the variables are free, that the quantificational force of the composite item will also depend on the presence of other operators higher up in the structure. If we assume, in a simple case that the variables resulting from the unpacking operation are closed by existential closure, the result will be as expected, i.e. the conjunction will give a universal reading while the disjunction will produce an existential one. As we will see below this simple picture is problematic in certain cases. With this background let us now turn to the analysis of disjunction based quantifiers.

⁵For more details on this operations, see Tsoulas (In progress).

4. Disjunction based quantifiers⁶

The paradigmatic case here is the Japanese quantifier *Dare-ka* (who-DISJ). It is possible to maintain, given what we have said so far that this quantifier works exactly as described in the previous section. The disjunctive unpacks the metavariable provided by the indeterminate into an infinite disjunction, the resulting variables are taken care of (bound) by existential closure and the result is an existential quantifier⁷. The problematic case though regarding disjunctive quantifiers is the case of Korean *Nwukwu-na*, which, at first sight at least, presents us with the same ingredients as its apparent Japanese counterpart. However, its interpretation is not existential but, rather unexpectedly, universal as the following example clearly shows.⁸

- (12) Nwukwu-na ke kes-ul hal-swiiss-ta
 who-DISJ the thing-ACC do-can-DE
 ‘Everyone/anyone can do it’

Now, this seems to go completely against the central idea in the theory outlined above. However, as we have shown in other work too, a closer look reveals that the structure of these quantifiers is more complex. Specifically, in those cases where the phonological context allows it, we see that a particular form of the copula is found (-i-):

- (13) Chelswu-nun mwues-i-na cal mek-ess-ta
 Chelswu-TOP what-COP-DISJ well eat-PAST-DE
 ‘Chelswu ate everything well’

That the morpheme *-i-* is indeed a form of the copula is confirmed by both traditional and modern studies (see a.o. Jang (1999), Lee (1996), Martin (1992)) If this is correct then one is naturally led to ask what exactly is this copula heading and what is its function. The natural assumption is that the presence of the copula is indicative of the existence of covert sentential structure. This fact has been recognised and one proposal along these lines can be found in Chung (2000) who proposes that indeterminate + (*i*)-*na* elements have more elaborate, sentential-type structure and analyses them as covert indirect questions. The idea that these are covert questions does indeed accord well both with the fact that the morpheme *na* seems to also serve as a question marker⁹ and the well known affinity between disjunctions and interrogatives.¹⁰ Although this line of analysis seems rather perspicuous, and does indeed capture a relationship that certainly exists (between disjunction and questions that is), it is nevertheless difficult to see the connection between an indirect question and the quantificational force displayed by these elements. In other words, given that these elements are not interpreted as interrogative pronouns and the sentences in which they occur are not necessarily questions, then one naturally wonders about the feasibility of an analysis which postulates interrogative structure there. To the best of our knowledge, at least so far as Korean is concerned, no analysis has been offered to explain this connection. If we reject the idea that the covert sentential structure is interrogative, we maintain that the only other viable

⁶The account for Korean that we present here in this section is also presented in much greater detail in Gill *et al.*, (2003)

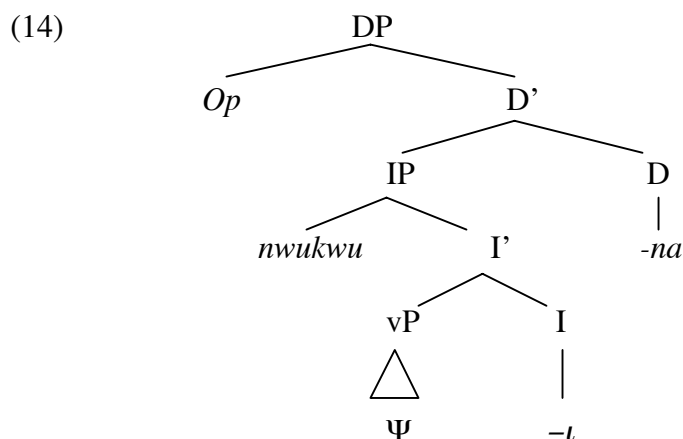
⁷An anonymous reviewer correctly remarks that in this particular case a single variable and existential closure would give the same result. However, if we assumed so we would be failing to provide an account for the import of the disjunction and, furthermore, we would be giving up on a unified account for a set of phenomena which seem to form a natural class.

⁸We will ignore here the difference between universal and free choice readings for reasons of clarity.

⁹However, it seems that this is only a superficial similarity as a close examination of the morphophonology of the question morpheme shows.

¹⁰Jayaseelan (2001) also, in his analysis of Malayalam, makes similar claims.

option open to us is to assume that it is a relative clause. Thus we propose that the sentential component of these items is a relative clause modifying the indeterminate part of the composite item. The disjunction morpheme is then attached to that structure. Now, given the general syntax of relative clauses in Korean and especially the fact that externally headed relatives are prenominal we are forced to the conclusion that the relative clause is an *internally headed* one with the indeterminate pronoun sitting in [Spec IP] and the disjunction morpheme in D as in (14):



In (14), Ψ stands for the contextually supplied predicate which further restricts the (meta)variable contributed by the indeterminate. This is reasonable and accurately reflects the intuition that there seems to be a stronger contextual restriction. The operator *Op* is the relative operator merged in [Spec DP]. This structure is the same as the one proposed by Basilico (1996)¹¹. This structure also follows a suggestion by Watanabe (1992, 2002) and posits the particle *na* under D.¹² As we will show in the following sections, this consequence of the proposal that the sentential structure is a relative clause is the key to the resolution of the mystery of the universal interpretation.

4.1 The universal interpretation

We claim that if the syntactic structure proposed in the previous section is correct, then the interpretation follows in a simple, elegant and natural manner. To see how the interpretation proceeds let us first consider briefly the nature of internally headed relative clauses.

4.2 Internally headed relative clauses are quantificational

We will follow here an important body of work which has suggested that internally headed relative clauses are quantificational rather than cases of relativisation involving λ -abstraction. Work by Basilico (1996), Jelinek (1987;1995), Culy (1990), Srivastav (1990;1991) and Williamson (1987) convincingly argues that this is so. In this view the sentential part of the relative clause functions as the restriction to the operator associated with the relative clause. The operator in question, it is argued, is the well known *iota* operator. It is this operator that binds the variables inside the relative clause. The following is an example from Diegueño, taken from Basilico (1996):

¹¹Watanabe (2002) takes a slightly different view of the structure of Head Internal Relative Clauses. He proposes that D should take a CP rather than an IP complement.

¹²We will return shortly to this point.

- (15) i: pac ‘wu: w-pu-c
 man I.saw-DEM-SUBJ
 ‘The man that I saw’

Basilico assigns the following representation to the above sentence in accordance with analysis of internally headed relatives sketched above:

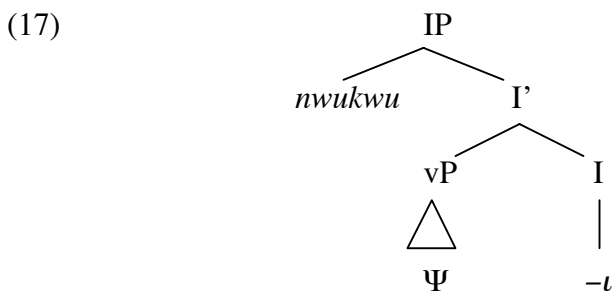
- (16) $\iota(x) [man(x) \wedge saw(I,x)]$

For reasons that need not concern us immediately Basilico takes the demonstrative *pu* to represent the *iota* operator. Nothing intrinsic to the theory though requires that the operator be overt.

Now with these assumptions on the interpretation of internally headed relative clauses in place, we return to the interpretation of *wh +(i)-na*.

4.3 Deriving the interpretation I

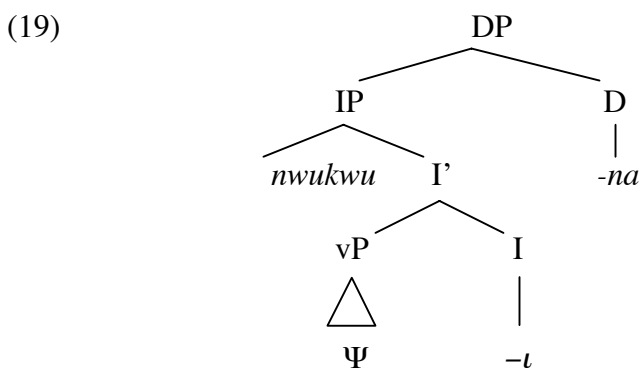
Assume now that the following partial structure has been built (omitting irrelevant details and steps in the syntactic derivation):



As we have proposed the indeterminate introduces a metavariable with a restriction.¹³ In this case the restriction is simply *Human*. The representation then of (17) will be (18):

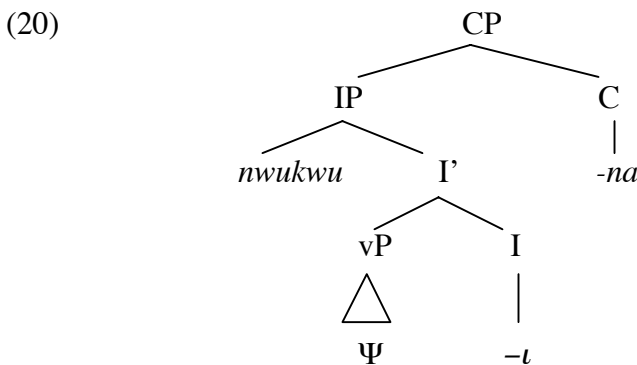
- (18) $H(\Xi) \wedge \Psi(\Xi)$

Where Ξ represents the specific type of variable. Now we introduce the disjunctive *-na*:



¹³This proposal is formally dissimilar to the ones found in Jayaseelan (2001) and Nishigauchi (1986; 1990) but it is close in spirit

Two questions arise here, first whether the label DP is appropriate, and second what is exactly the interpretation of (19). Concerning the first question, putting *-na* under D is arguably problematic. Its problematic nature derives from this: if we are to derive the meaning of the composite item purely compositionally based on the meanings of its component parts, and if we take it that the particles attached to the indeterminate elements are indeed the same particles as the ones conveying the meaning of disjunction or conjunction, then the problem is obviously that these elements are not quite the right type to serve as determiners under natural assumptions about the status of determiners. If, on the other hand, we consider these particles as genuine quantificational determiners meaning approximately ‘every’ and ‘some’ then the immediate problem is that in order to take on these meanings they *must* combine with an *indeterminate* pronoun. The challenge of offering a solution to this problem is taken up by Watanabe (2002). His explanation is that the restriction in the combination possibilities of the quantificational determiners in Japanese comes from a requirement that they must undergo checking with an indeterminate. This however doesn’t quite explain why this should be so. Moreover it simultaneously bars the possibility of a compositional account which would be applicable to both the ‘quantificational particle’ and ‘disjunction marker’ uses. In other words, it just seems too exceptional a behavior, which is more or less what Haspelmath (1997) argued concerning the crosslinguistic consistency of these patterns.¹⁴ To avoid these problems we propose that *-na* is in fact under C and the real structure is (20) rather than (19):



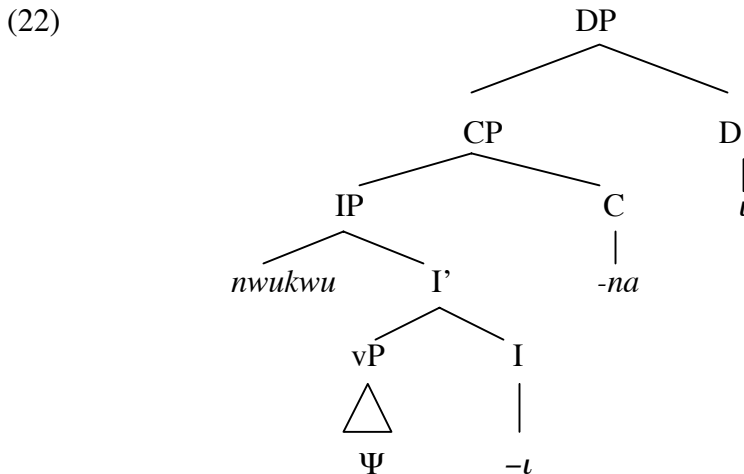
The problem of course here is that these elements have the distribution of DPs rather than CPs. We will address this in a moment. Let’s first try to answer the question of the interpretation. We proposed that *-na* is an unpacking disjunctive operator with no peculiar quantificational properties of its own. The effect of adding it to the already formed constituent is in fact to *unpack* it into something of the form:

$$(21) \quad ((H(x_1) \wedge \Psi(x_1)) \vee ((H(x_2) \wedge \Psi(x_2)) \vee ((H(x_3) \wedge \Psi(x_3)) \vee \dots (H(x_\infty) \wedge \Psi(x_\infty))))$$

This is rather similar to Jayaseelan’s (2001) operation.

So far then, we can say that we have something akin to an \exists . Crucially though, the next step involves the addition of the *iota* operator. We propose that the operator is a D dominating the CP as in (22)

¹⁴Though Haspelmath conceded that the Japanese case is one of the most systematic ones.



Putting the operator in D is very natural for two reasons, first, it explains why these elements have a DP-like distribution, second, if we recall Basilico's suggestion concerning the Diegueño example in (15) that the demonstrative element plays the role of the *iota* operator, it seems all too natural to adopt a similar strategy for Korean. The representation then for (22) will be something like (23).

$$(23) \quad \iota((H(x_1) \wedge \Psi(x_1)) \vee (H(x_2) \wedge \Psi(x_2)) \vee (H(x_3) \wedge \Psi(x_3)) \vee \dots (H(x_\infty) \wedge \Psi(x_\infty)))$$

What is remarkable about this structure is that it contains a number of unbound individual variables and an operator that binds no variable. We propose that the *iota* operator unselectively binds all the variables in the formula. We consider the unselective binding operation here as formally similar to existential closure, in the sense that binding by the same operator does not result in identity. We are now just one step away from the universal interpretation. To see what this step is consider the properties of the *iota* operator.

4.4 Deriving the interpretation II

It is fair to say that the best candidates to be represented by the operator in a language like English are demonstratives and the definite article. The definite article can be characterised as an anti-additive function. Anti-additive operators are defined as follows (van der Wouden (1994) and Zwarts (1998)).

- (24) Let \mathcal{B} and \mathcal{B}^* be two Boolean algebras.
 A function f from \mathcal{B} to \mathcal{B}^* is anti-additive iff
 for arbitrary elements $X, Y \in \mathcal{B}$ $f(X \cup Y) = f(X) \cap f(Y)$

In slightly different terms we can say that an antiadditive operator is reminiscent of the second De Morgan's law:

$$(25) \quad \neg(p \vee q) \leftrightarrow \neg p \wedge \neg q$$

This can be seen in the following English examples¹⁵:

(26) Every man or woman who bought anything was happy

Here we see that the universal quantifier fulfills the requirements of the definition of an anti-additive function. Thus (26) means : *Every man AND every woman ...* The same is true of the definite article. In English a plural definite is required as the following contrast, first noted by May (1985) shows:

(27) * The student who read anything about Plato left

(28) The students who read anything about Plato left

The anti-additivity of *the* is responsible for the licensing of *anything* in the first argument of *the*. Now, the same observation that we made with respect to (26) can be made with respect to plural definites:

(29) The men or women who left early missed the best part of the party.

(29), just like (26), means *the men AND the women who ...* Interestingly, in English at least these types of construction are only acceptable when a relative clause is modifying the [NP or NP] part. This is of course reminiscent of the phenomenon of subtrigging (LeGrand, 1975) but we will leave this to one side for this paper. Now, if we assume that the *iota* operator in the internally headed relative clause has the same property as the plural definites in English¹⁶ the universal semantics of the Korean disjunction-based quantifier follows without any extra stipulation. Thus by the anti-additivity of ι we have (30)

$$(30) \quad \iota((H(x_1) \wedge \Psi(x_1)) \vee (H(x_2) \wedge \Psi(x_2)) \vee \dots \vee (H(x_\infty) \wedge \Psi(x_\infty))) = \\ \iota x_1 (H(x_1) \wedge \Psi(x_1)) \wedge \iota x_2 (H(x_2) \wedge \Psi(x_2)) \wedge \dots \wedge \iota x_\infty (H(x_\infty) \wedge \Psi(x_\infty))$$

which is precisely the interpretation that we sought to derive and the interpretation *wh-(i)-na* elements receive. Put slightly differently, the interaction of the ι -operator with disjunction turns an infinite disjunction to an infinite conjunction, aka a universal quantifier.

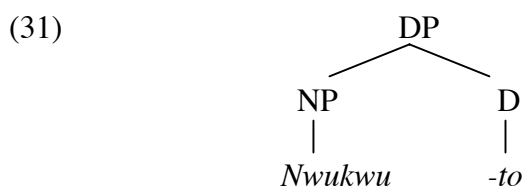
5. Extending the account

Assuming the account for the disjunction based quantifiers in Korean given in 3. It is still unclear how that can help us in understanding the polarity sensitivity of the quantifiers using conjunctive suffixes. The avenue we would like to pursue with respect to this question is that the line of thought proposed for disjunction quantifiers in the previous section is generally valid for all quantifiers following the same pattern of formation, whether or not disjunction is used. On the other hand, we will take here polarity sensitivity to indicate that the items in question are somehow

¹⁵ A reviewer asks whether this is a property of the determiner *every* or of the disjunction itself and offers the example: *No man or woman left* \rightarrow *No man AND no woman left*. However this example is uninformative since *Every* and *No* have the same properties concerning anti-additivity. A more telling example would be *Some*. Consider: *Some man or woman left* which clearly does not entail *Some man and some woman left*, which shows that it is not the disjunction alone that is responsible for the particular effect here.

¹⁶Plurality is satisfied trivially in the Korean cases given that we have n ($n > 1$) variables.

incomplete. We interpret their incompleteness as reflecting absence of a suitable operator to bind the variables produced by the unpacking operation. Now if we take the above ideas together with the analysis of the Korean quantifiers the following account emerges. We will assume, quite naturally, that the process seen in the cases of disjunction acting upon the variable provided by the indeterminate, whereby an infinite disjunction is produced, equally applies to the cases with conjunction. The crucial difference between the two cases is that in the case of conjunction there is no hidden relative clause and, as a result, there is no operator, such as the ι operator postulated to provide an appropriate binder for the variables, which then remain unbound. This, we claim, is an illegitimate structure and there is no way to salvage it internally so to speak. The only contexts in which this structure can appear and be licensed are contexts where an independent operator is provided and where that operator acts unselectively. This is the case with negation and modality operators. This intuitive extension of the previous account raises, however, an important question. Namely, in order to implement this idea we need to face up to the fact that what made the disjunction based quantifiers special was that the disjunction morpheme was, syntactically, a complementizer. This cannot be so, if this extension is on the right track for the conjunction based ones. There simply isn't any CP for the conjunctive morpheme to head. Given that these elements have the distribution of DPs, the most plausible assumption (in accordance with much of the literature), is that the conjunctive morphemes are determiners, heading the DP projection. The structure will, therefore, be the rather simpler one in (31)



Though they are determiners we still assume that they do not fulfill the natural role of determiners. Their function still remains that of unpacking the metavariable introduced by the indeterminate to a series of variables connected by the appropriate operator. Now the variables resulting from this operation require further binding. In normal circumstances one would expect that existential closure, as invoked for the derivation of the existential meaning of Japanese *dare-ka* should also be operational here and produce the universal meaning. This however seems not to be the case. As we saw earlier the items in question are all polarity sensitive. Therefore, there seem to be two options, first, to assume that existential closure is not applicable in these languages or in these particular cases, and second, that either the indeterminate itself or the conjunctive operator have a lexical feature which somehow requires them to be in the scope of certain types of operators. It is highly unlikely that the indeterminate may contain such a feature since, in Korean at least, the indeterminate can occur in affirmative sentences and receive the interpretation of an indefinite. On the other hand it would also not be particularly natural to suppose that the operator itself contains that feature. This is especially so in view of the fact that we maintained that these are essentially conjunctions/disjunctions. Concerning the first option, it is in fact more attractive. If we assume that at least existential closure does not apply to these indeterminates because simply they are not Kamp-Heim type indefinites (*contra* Nishigauchi (1986, 1990)) then it is legitimate to assume that being *incomplete* in the way indicated earlier, they require an extra operator such as modality and/or negation for their licensing and the facts follow.

6. A potential problem and a remaining question

We have so far made some progress towards understanding the quantifiers formed out of indeterminate pronouns. If our approach is on the right track there is still a problem that we need to address. Specifically, we need to reassess the case of Japanese existentials for which we have assumed that existential closure was used. If it is the case that the fact that indeterminates are not similar to Kamp-Heim indefinites then the variables in the case of *dare-ka* cannot be bound by it. It would indeed be bad news if we had to maintain both operations. The good news, however, is that as it turns out *dare-ka* is a positive polarity item¹⁷ as the following examples suggest:

- (32) Taka-wa dare-ka-ni awa-na-katta
 Taka-TOP who-DISJ-with meet-NEG-PAST
 ‘There is someone that Taka didn’t meet’
 ‘*Taka didn’t meet anyone’

If it is correct to interpret the inability of *dare-ka* to scope under negation as some kind of *positive* polarity sensitivity and assume that in each clause there is a polarity operator (perhaps akin to Laka’s Σ (Laka, 1990)) which would, in at least this respect, display the same type of behaviour as its negative counterpart (sentential negation) then it is natural to suggest that the role of negation in the licensing of the conjunction based quantifiers is fulfilled by this polarity operator, dispensing with existential closure altogether in what concerns indeterminates. A welcome result.

The remaining question now is why is the polarity sensitivity of the Japanese conjunction based quantifiers voided by the addition of a case marker¹⁸ (cf. (10) repeated here as (33))

- (33) Dare-mo ga nani-ka o tabe-te-iru
 who- CONJ NOM who-DISJ ACC eating-be
 ‘Everyone is eating something’

A number of ways to approach this question come to mind, sentence aspect for instance. Tentatively though, we would like to suggest, following Watanabe (2002) who suggests that case in Japanese is closely connected to specificity, that in the presence of a case marker a specificity operator is responsible for the licensing of the conjunctive quantifier. This suggestion is offered as a tentative solution only in order to complete the picture.

7. Concluding Remarks

In this paper we have attempted to formulate a general framework of ideas and tools in order to capture the interpretation of quantifiers formed by affixation of a morpheme denoting conjunction or disjunction to an indeterminate pronoun. One of our main conjectures is that the morphemes which are affixed to the indeterminates are indeed in essence conjunctors and disjunctors albeit of a special kind. We offered a conceptualisation of the semantic function of these morphemes in terms of their effect on an indeterminate pronoun, i.e. unpacking it into a sequence of variables related by the appropriate connective. The underlying intuition is that the quantificational force of the resulting quantifiers is to be accounted for on the basis of the logical equivalences in (4) and (5).

¹⁷We are indebted to Akira Watanabe for this observation.

¹⁸Note that this pattern is not reproducible in Korean since the corresponding Korean quantifier does not allow case marking:
 *Nwukwu-to-ga.

There are also a number of problems that we have not addressed here at all such as the free-choice meaning often attached to disjunction based quantifiers¹⁹. Also, the polarity sensitivity of several of these quantifiers remains intriguing. The difficulty lies in the apparent selectivity of the operators to which some of the items seem to be sensitive. Although we tried to derive their distribution in a more general fashion it remains possible that one will be forced to incorporate, in terms of a featural dependency perhaps, the operator selectivity into the lexical definitions of the operators, hopefully this will not be necessary. We have also offered a peculiar view of indeterminate pronouns as variables ranging over other variables, rather than individuals, in terms of, say, alternatives, an avenue which we have not yet explored. However, we have shown that there clearly was some mileage to be gotten from the conception that we put forward.

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¹⁹We have addressed this in some detail in Gill *et al.* (2003)

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