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Negation, Indefinites, and the Jespersen Cycle

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Introduction*

My goal in this paper is to bring together current theories of the abstract syntax of negation and the semantics of indefinite arguments to elucidate what is called 'Jespersen's cycle' in the diachronic development of the expression of negation. The classic statement of the cycle comes at the start of Jespersen 1917 (p. 4):

The history of negative expressions in various languages makes us witness the following curious fluctuation: the original negative adverb is first weakened, then found insufficient and therefore strengthened, generally through some additional word, and this in its turn may be felt as the negative proper and may then in course of time be subject to the same development as the original word.

Jespersen illustrates two full cycles from Romance with the examples in (1).

- 1.a ne dico
 - .b non (=ne+oenum) dico
 - .c jeo ne di
 - .d je ne dis pas
 - .e Je dis pas

In Latin, we begin in (a) with the particle *ne* preceding the finite verb. In the first cycle, *ne* is strengthened by the indefinite *oenum* ('a thing') which becomes the new particle *non* in (b). The second cycle begins with the weakening of *non* to *ne* in Old French (c), which is in turn 'strengthened' by a particle derived from an indefinite in the Modern Standard French (d). Weakening *ne* to the point of silence gives the colloquial (e). The previously redundant particle has assumed the ability to express the negation.

The Head and Argument cycles

As presented by Jespersen, it is a cycle with three main stages. The examples concern the development of negation particles positioned with respect to the head of the clause, i.e. the finite verb. But there is a parallel pattern in the development of negative argument expressions. Modern Romance languages offer us numerous cases of argument phrases which are (affirmatively) indefinite in form but which express negation. In addition to the French personne and rien, the Catalan sentence in (2) shows that a word which historically must have meant 'a thing' but now means 'nothing':

2. Res l'espanta

Nothing scares him¹

The development of negation-expressing argument phrases from regular indefinite arguments has the following stages: first the argument is a regular indefinite

argument, then it becomes a co-occuring 'supporter' of the clausal negation, and finally it becomes an independent expressor of negation. We could call these the 'one thing', 'anything', 'nothing' stages of the Jespersen argument cycle, represented by (3).

- 3.a She didn't say one thing
 - .b She didn't say anything
 - .c She said nothing.

The examples in (3) are intended to represent semantic stages followed by single items like *personne* and *res*, whose meanings seem to change without change in form.

However to see the argument cycle as involving only these three stages is to overlook an intermediate stage between the second and last stages. There are two differences between (3b) and (3c): the absence of negation on the head of the clause and the ability of the object argument to express negation. In standard English, negation cannot be marked on the head of the clause when it is expressed in the object argument. While it is conceivable that the development of sentences like (3c) might make these two changes simultaneously, the evidence of the Romance languages and non-standard dialects of English shows an intervening stage. The argument cycle is better represented by (4), in which there are four stages.

- 4.a She didn't say one thing
 - .b She didn't say anything
 - .c She didn't say nothing
 - .d She said nothing.

The stage (4c) is 'negative concord', where a single semantic negation is indicated by both the head of the clause and the argument expression. A stage involving negative concord is a necessary step in the development of argument expressions which are able to express negation independently. It is therefore not surprising to find that the Catalan sentence in (2) has a concordant correspondent (5):

5. Res no l'espanta

Nothing scares him

If arguments follow a four-stage cycle, we should reconsider the stages represented in (1) for the head particle cycle. The end of the argument cycle is one in which concord is no longer possible and the argument expressor is the sole indication of negation. With this in mind, we see that Colloquial French will not have reached the end the cycle until it is no longer possible to double *pas* with *ne*. Consequently the full head particle cycle is represented by (6):

- 6.a ne
 - .b *(ne)...pas
 - .c (ne) ... pas
 - .d (*ne) ... pas

What the two cycles have in common can be expressed as (7):

- 7.a Head expression of negation
 - .b Head supported by strenghtener
 - .c Strengthener able to express negation and be concordant
 - .d Former strengthener now independent expressor of negation

The two cycles are logically independent but the principal source for the strengtheners in the head cycle are strengtheners from the argument cycle. Horn 1989 (p. 452) notes a menu of items like a crumb, a fig, a garlic, and a leek and their monetary counterparts (sous, red cents, plugged nickels, and thin dimes) as well as atomic units in various domains (like the inch that you don't budge) frequently do service as argument cycle strengtheners and can become conventionalized negative polarity items. Minimum value items can also switch cycles to become invariant strengtheners for head negation, as did the step (passum) of early French which gives modern pas. All of these are apparently indefinites: phrases which might be considered existential quantificational or referential terms.² And so it is to an examination of the theory of indefinites that I now turn.

Theory of Indefinite Arguments

In an influential line of work starting with Lewis 1975 and continuing through Heim 1982, Partee, 1991, and Deising 1992 among many others, an approach to the logical structure of quantification and the role of indefinite arguments in it has been developed which has the makes the following general assumptions.

Quantificational structures

Quantification is a relation between a restriction or domain and a claim about the domain, the scope of the quantification. The mapping between this tripartite logical structure and the syntactic structures which express it can be direct or obscure. The most direct relation is nominal quantification, where the operator is expressed by a determiner whose complement is the restriction and whose position in the clause indicates the target of binding in its scope. Less direct are cases of adverbial and modal quantification, in which the restriction is drawn from adjunct clauses or particular parts of the clause containing the adverb or modal. On this view, there is a common abstract logical structure to the sentences in (8), despite the fact that the universal quantificational operator is expressed by a determiner in (a), an adverb in (b), and no visible formative in (c).

- 8.a Every violinist carries an extra bow.
 - .b A violinist always carries an extra bow.
 - .c If a violinist is careful, she carries an extra bow.

Binding of Indefinites

The common logical structure of these cases explains the varying quantificational force of indefinites like *a violinist* with adverbial quantification. (8b) claims that taking instances of violinists as our domain, all of them will carry an extra bow. With a different adverb in (9), the indefinite serves the same function, but the quantificational force is different: only a majority are claimed to carry an extra bow.

9. A violinist usually carries an extra bow.

The so-called Kamp/Heim theory of indefinites (Heim 1982, Kamp 1981) analyzes indefinites as restricted free variables with no inherent quantificational force. Indefinites inherit their quantificational force by relating to the quantificational operators in the sentence in a predictable way. Indefinites in the restriction of a quantifier act as if they were bound to the quantifier, while indefinites which fall in the scope of quantifications are existentially closed within that scope. (The latter assumption accords with the tradition of considering them to be existential quantifier phrases.)

In the view of logical structure which emerges from these assumptions, phrases in a variety of syntacic categories license a tripartite quantificational structure during interpretation. Indefinites are phrases whose descriptive content expresses only the restriction on a variable. The combination of verbs with their arguments does not generally create a quantificational structure. Indefinite arguments create parameterized meanings whose parameters are grounded when it becomes the restriction of a quantificational operator. In the sentences in (8), the indefinite an extra bow falls in a quantificational scope and so is existentially closed in that scope.

If we assume, in a natural extension of Fodor and Sag 1982 that indefinites may be systematically ambiguous between a referential and a free-variable construal, then the classic baby logic ambiguity of (10) is an ambiguity between a referential and a free variable construal of the indefinite $a \, dog$.

10. every student petted a dog.

The reading on which the choice of dog covaries with the choice of student is the natural outcome of the assumption that the indefinites in the scope of a quantificational domain will be anchored within it. The other reading results from construal of the indefinite as referring to a (discourse novel) dog.

Quantifier operators may either directly bind the variables represented by indefinites or simply trigger their existential closure. In either case, an indefinite is not free outside of the minimal quantificational structure in which it falls. I will say in either case that the operator *roofs* the indefinite. In (8), the indefinites a violinist and an extra bow are both roofed by the universal operators.

Since the argument expressions in the Jespersen cycle are indefinites, I will assume that the kind of analysis sketched here is appropriate for them. I will also assume that negation is logically an operator structure. We are accustomed to speaking of the scope of negation; for a brief discussion of the restriction of negation, see Kratzer 1989. As a consequence, we will view a negated clause as a domain in which indefinites are roofed by the negation operator. Parallel to (10), the ambiguity of (11) is due to the referential/free variable ambiguity of the indefinite argument expression.

11. She didn't talk to a student.

The reading on which it entails that she talked to no students results from the roofing of the indefinite by negation.

The Head Cycle and Inflectional Projections

The prime locus of the expression of negation is the head of the clause. Because of the essentially subject-predicate structure of at least some propositions, the view of negation as a mode of predication advocated by Horn 1989 is an attractive one and will be assumed here.

This assumption makes the association of head negation particles with the finite verb reasonable under the assumption that these elements are part of the inflectional system which is represented by the functional category (family) I in current transformational grammar. In recent work on the syntax of negation within this framework, following from the analyses in Pollock 1989, free-standing negative particles and bound negative morphology is analyzed as a functional formative which projects a phrase in which the scope of the negation serves as the complement to the functional head. Depending upon the morphological facts of the language, bound morphemes will be gathered into words by the action of head movement between the verb and the components of the inflectional functional formatives.

I cannot survey these analyses in any detail here, but I will observe that two detailed analyses of languages in these terms have proposed conditions which require negation and tense to be in close association in surface structures. Laka 1990 assumes a universal constraint which requires that the tense projection c-command the negation projection in s-structure and proposes that languages may differ from each other in the underlying relation between tense and negation. Zanuttini 1991 assumes that there are two universal underlying positions for negation within the inflectional projections, either above or below the tense projection. She proposes analyses for a range of Romance languages which differ in whether they they allow negative concord, correlating some of the differences with whether the negation projection c-commands the tense head in s-structure.

The results of both of these theories are congenial to the semantic assumption that clausal negation as a mode of predication is licensed by the morphological indication of negation in the head of a clause. The syntactic assumptions of these theories make major features of Jespersen's Head Cycle fall out, if we assume that the principal negation is in the higher position, above tense, and the creation of the supporting negation is reanalysis of an argument expression as a functional projection below the tense. The fact that both of these positions are part of the complex head projection of the clause make the fact that either one or both together are able to license the quantificational logical structure which is the expression of the negation.

Henceforth I will assume that a clause is interpreted as negated by predication denial in the sense of Horn 1989 iff its head, the complex Infl, is licensed to contain the abstract formative [neg], and that the most obvious way of doing that is putting a negation particle into the Infl complex. With that as background, we can examine in detail the stages of the argument cycle.

The Roofing of Indefinite Arguments

The Kamp/Heim analysis of indefinites provides a basis for the interpretation of a variety of so-called weak quantifier terms, not just traditional indefinites like a dog. While most can be given both referential and bound variable construals, some indefinites lack the referential option. As a consequence, they will always be roofed by some quantificational operator in the clause and appear to be subject to a licensing condition, as they would not be well-formed in clauses which cannot be analyzed as containing some quantificational operator.

Among the candidates for analysis as nonreferential indefinites are *wh*-phrases in English, which always have some roofing operator.³ Ladusaw 1992 argues that argument negative polarity items like *any* and *ever* should also be analyzed as nonreferential indefinites. Classes of nonreferential indefinites differ according to range of operators which license them. Following Ladusaw 1979 and Keenan and Faltz 1985, I will assume that the nonreferential indefinites that we call negative polarity items must be roofed by an operator which is polarity reversing in the sense defined in (12), a category which includes clausal negation.

12. A function f is **polarity reversing** iff $\forall p,q[p \le q \rightarrow f(q) \le f(p)$.

With regular indefinites, we can observe that for phrases with a good deal of descriptive content like that in (13b), a referential construal is preferred; while those with minimal descriptive content as in (13a) tend to be construed as nonreferential.

- 13.a She didn't talk to a student.
 - b She didn't talk to a student of mine who lives next door.

I assume that this follows from the pragmatics of utterance interpretation and not from grammatical theory, but indefinites with minimal descriptive content can be grammaticized as nonreferential. In addition, given the polarity reversing property of negation, nonreferential indefinites which describe minimal units for a domain will have the effect of widening the restriction of the operator (in the sense of Kadmon and Landman (to appear)) and therefore will strengthen the assertion of the sentence, as described in Fauconnier 1975. Consequently, indefinites with little descriptive content which describe minimal elements are ripe for reinterpretation as negative polarity items. And as we noted above, this is the class of items which are prime inputs to the Jespersen's argument cycle.

Returning to the cycle in (4), the move from stage (a) to stage (b), the 'strenghtening' of the negation, is the development of a nonreferential negative polarity indefinite. On the view laid out here, nothing changes in the semantic interpretation of an indefinite when it takes on this status. The grammaticization of nonreferentiality will entail that the item must have a license in the clause. Additionally, its licenses must be restricted somehow to the polarity reversing operators in whose scope it can consistently function as a strengthener.⁴

So the first move in the cycle produces a negative polarity argument and the theory of indefinites allows us to see that it is not a change in denotation.

Developing Negative Concord

The next move in the cycle continues by a fallacious move of 'cum hoc ergo propter hoc,' in which the negative polarity item becomes a potential expressor of negation. But I think it must actually involve two steps, the first of which is the development of a negative concord system.

The argument cycle in (4) is illustrated with English phrases in which the argument expression has incorporated a morphological feature of negation. But recall the facts of French *personne* and Catalan *res* and we can see that morphological change is not a necessary condition for the next move. What is needed in order to show that the next move has occurred is evidence that the argument expression alone is sufficient to express negation.

It seems to be a general property of most negative polarity items that in addition to being logically roofed by their licenses, they must be c-commanded by them in surface structure. It is this assumption that is responsible for the ungrammaticality of (14):

14. *Any of them didn't talk to her.

As a consequence, the first indication that an argument expression is losing its conventional polarity item status is its ability to appear in positions structurally superior to its erstwhile license. As a consequence, from the day that (5) became a well-formed sentence in Catalan, for example, it was clear that *res* was losing its status as a normal polarity item. At the point at which (2) became grammatical, it was clear that it had acquired the ability to be an independent license of the expression of negation. That is, it had succeeded in moving from meaning 'anything' to 'nothing'.

What does it mean to have come to mean 'nothing' (in the relevant sense)? One might think that it had come to express a negative existential quantifier; that is, one might think that it had come to express the generalized quantifier in (15):

15. $\lambda P [PERSON \wedge P = \emptyset]$

But if that is what happens at the next stage, we are confronted with a profound chaos in the speech community. For if these phrases actually change their denotations to (15), then sentences like (4c) come to mean the exact opposite of what they meant before the change. This is the semantic double negation effect. To change the denotation of these expressions will make them independent expressors of negation. And yet in order to explain the meaning of examples like (5), we would seem to need to assume that these argument phrases have the denotation in (15). The key to this dilemma is to note that Catalan, Italian, Spanish, and presumably all the other languages which are in this stage of

development are negative concord languages and to assume that the next stage in the cycle is the development of a negative concord system.

In Ladusaw 1992 I argue in more detail that the best analysis of negative concord languages is to assume that the denotations of the argument terms in a clause showing negative concord are precisely the same as the negative polarity items: they are nonreferential indefinites roofed by the clausal negation. This assumption however raises the issue of how negation actually gets expressed in a clause like (5). I believe it gets expressed configurationally rather than be inherited directly from the denotation of any of the visible formatives of the clause. One way, but not the only way, of making sense of this idea is to assume that in the interpretation of the such a clause, the negation is expressed by the inflectional head of the clause. What we need an answer for is how the inflectional head of the clause can express negation when there is no morphological indication of negation on it.

The answer I propose is that at this stage of the language, the head of a clause can be considered negated if either it is marked with negative morphology or governed by a phrase which is marked with the ability to license the expression of negation. The distinction is a fine one, but I think a necessary one. In a sentence like (5) or its Italian analogue (16), the head of the clause is interpreted as negative because the argument expression *nessuno* carries a morphosyntactic feature which licenses the occurrence of an abstract negation in the inflectional complex.

16. Nessuno ha visto Mario.

Nobody has seen Mario.

As a consequence of this analysis, the fact that these languages are strictly negative concord follows automatically. The only other support that I can currently adduce for this position is that, under the assumption that licensing relations generally require c-command in surface structure, it also explains the pattern of grammaticality in (17)-(18), which is pervasive in negative concord languages. These argument terms are able to licensed the expression of negation only if they c-command the head of the clause in surface structure.

17.a Mario non ha visto nessuno.

Mario has seen noone.

.b *Mario ha visto nessuno.

18.a Non ha telefonato nessuno.

Nobody telephoned.

.b *Ha telefonato nessuno.

Nobody telephoned.

So we now have the basis for a story about the development from (b) to (c) in the Jespersen Cycle: The negative polarity item does not change its denotation, but rather trades surface structure licensing conditions with the head of the clause. No longer required to be c-commanded by negation in s-structure, they are free to occur in positions superior to the head of the clause. In this position, they are in a position to themselves act as licenses for the expression of negation from the inflectional complex. Nothing in the semantics has changed yet; the only changes have been in the structure-sensitive licensing requirements on these elements.⁵

We are now in a position to complete the description of the argument cycle The property of licensing the expression of the negative quantificational structure through the clause head can be reinterpreted as the property of directly expressing the structure. As a consequence, each of the items which previously could license clausal negation in the absence of head marking are now interpreted as independent expressors of negation. This causes the change from a negative concord language into a double negation language. The apparent change in denotation from nonreferential indefinite denotation to negative quantifier is only apparent. The generalized quantifier denotation in (15) is precisely what one would expect of a negation operator structure whose restriction simply is the indefinite which has served as the denotation all along.

Conclusion

The argument in this paper has been an involved one and I have not been able to bring to bear in the space available all the evidence that I would have liked. However I hope to have made clear the attractiveness of the theory of indefinites as a way of capturing the generalizations about the relation between head and argument negation, negative polarity items, negative concord, and negative quantifiers which have been associated with the term 'Jespersen's cycle' for many years.

In brief summary, I have argued that we should recognize two cycles: a head cycle and an argument cycle. They are logically separate but practically related by the recruitment of negative polarity items as supports for head of clause negative particles. The theory of indefinites gives us a way of describing the progress of the argument cycle without assuming at any stage that the denotation of the arguments has changed. Rather the cycle is a result of the ebb and flow of grammaticalized licensing conditions on indefinites and the head markers of negation which produce negative concord languages as a crucial stage in the cycle.

Footnotes

- * The research reported herein is supported by NFS grant BNS -9021398.
- ¹Picallo, p. 93. She says that with some of the nonnegative phrases, the doubling with *no* is obligatory even in subject position, but that (2) is ok, though it prefers to be doubled. Importantly, it is ambiguous between this reading and one on which it means 'the smallest thing scares him', in which case this would be an example of the development of a ps/fc-any item.
- ²I do not believe that there is anything logically necessary in the connection between the two cycles and would be glad of examples of head strengtheners which are not derivative of argument expressions.
- ³This makes it sensible that there are many languages in which the 'negative polarity items' are *wh* words.
- ⁴I believe that this two step grammaticalization is responsible for the differences among languages in whether their any word can also have a free-choice reading and whether the *wh* words also function as free-choice or polarity items.

⁵If an item can gain the ability to license the expression of negation, then it can presumably lose it as well. This is what happens to *ne* when it loses the ability to be an independent expressor of negation.

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