

THE CAMELEONTIC NATURE OF FRENCH *NI* : NEGATIVE COORDINATION IN A NEGATIVE CONCORD LANGUAGE *

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Abstract

The main goal of this paper is to defend the claim that *ni*, the French counterpart of *neither* and *nor* is always a negative conjunction which takes part in the negative concord system of French. The interpretation one seems to get for this negative concord *ni* varies depending on the environment where it occurs: depending on its scope position with respect to other negative expressions in the sentence it may alternate with *and*, *or* and *and not*. The paper considers some consequences of this cameleontic behaviour for theories of negative concord.

1 How different are *ni1* and *ni2*?

There are two instances of *ni* in French. One (*ni1*) that precedes the first conjunct and one that precedes the second (or third etc.) conjunct (*ni2*). The first *ni* can often be omitted. At first sight, the two instances of *ni* seem to be fundamentally different (see De Swart 2001). Whereas *ni1* functions as a negative concord expression, *ni2* seems to be a negative polarity item. This claim can be defended on the basis of the data in (1) and (2).

The paradigm in (1) shows that a single *ni2* needs a negative environment. Without further negative material *ni2* is excluded. Once *ni1* is added, the problem is solved. This can be understood once we assume that *ni2* is an NPI, and thus needs a negative environment, while *ni1* is negative and as such does not need a negative environment and acts as a licenser of *ni2*.

- (1) a. Personne n'a mangé ni bu
 nobody ne has eaten NI drunk
 'Nobody ate or drank'

* This paper results from a class I teach at the French Department in Leiden, in which we read Henriëtte de Swart's paper on *ni*, and compare *ni* to its Dutch counterpart *noch*. I wish to thank the students of these classes, as well as Henriëtte de Swart, the participants of LUSH (in particular Evangelia Vlachou, Joost Zwarts and Rick Nouwen), Johan Rooryck and the audience of SuB 9 for comments and fruitful discussion. I am grateful to Madeleine van Strien-Chardonneau, Feray Baskin, Brigitte Kampers-Manhe, Elisabeth Delais-Roussarie, Jean-Marie Marandin and Myriam Landard for French judgements. The research for this paper has been partly financed by NWO (grant #355-70-003).

- b. *Jean a mangé ni bu
Jean has eaten NI drunk
- c. Jean (n') a ni mangé ni bu
Jean NE has NI eaten NI drunk
'Jean did not eat or drink.'

The data in (2) confirm this hypothesis. As shown in (2a), *ni2* can be found in the context of *pas*. Normally, this context is excluded for negative expressions in French, unless a double negative reading can be obtained. *Nil* patterns with other negative expressions such as *rien*. It is incompatible with *pas* unless a double negative reading is obtained (see Corblin et al., 2004). Again De Swart's conclusion seems to be justified: *ni2* is an NPI (can be licensed by *pas*), while *nil* is a negative expression (double negation in context of *pas*).

- (2) a. Jean n'a pas mangé ni bu
Jean NE has not eaten NI drunk
'Jean did not eat or drink.'
- b. ?Jean n'a pas ni mangé ni bu
Jean NE has not ni eaten NI drunk
'Jean did not neither eat nor drink.'
- c. ?Jean n'a pas rien mangé
Jean NE has not nothing eaten
'Jean did not eat nothing.'

The main claim made in this paper is that this conclusion is wrong. Both instances of *ni* are negative concord expressions, similar to *rien* 'nothing'. This claim will be defended on the basis of a comparison of *ni* and its Dutch counterpart *noch*. Before that, some basic information on negation in French will be given. The last sections of the paper consider consequences of this claim for theories of negative concord (NC), and more in particular, for theories that treat NC in terms of negative polarity (Ladusaw 1992, Van der Wouden & Zwarts 1993, Herburger 2001) and in terms of polyadic quantification (De Swart & Sag 2002).

2 Negation in French: some basic facts

French is a so called negative concord language. Several expressions that may function as single negative expressions are interpreted as a single negation when co-occurring in the same clause. This is illustrated in (4). The expressions *rien* and *personne* introduce a negation, and when used together they have preferably a single negation reading:

- (4) a. Pierre n'a **rien** dit
Pierre NE has nothing said
- b. **Personne** n'a dit cela
nobody NE has said that
- c. **Personne** n'a **rien** dit
nobody NE has nothing said
'Nobody said anything' (double negation hard to get for most speakers)

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Negative concord differs from negative polarity in several respects. In the first place, negative polarity items (or NPIs) need a negative expression in their environment. Negative concord expressions (NCEs) do not:

- (6) a. **Personne** n'a dit *quoi que ce soit* CF. (4c)
 nobody NE has said anything
 'Nobody said anything'
 b. *Pierre n'a dit *quoi que ce soit* CF. (4a)
 Pierre NE has said anything

Related to this is the impossibility to use bare NPIs as negative answers to questions. NCEs can be used in this context:

- (7) a. – Qui a cassé le vase? – **Qui que ce soit!*
 who has broken the vase anybody
 b. – Qui a cassé le vase? – **Personne!**
 who has broken the vase nobody

French has a further test to distinguish NPIs and NCEs, which is compatibility with *pas*. As already mentioned with respect to (2), NCEs are incompatible with *pas* or give rise to double negation readings, while *pas* is otherwise one of the best licensers for NPIs in the language:

- (8) a. Il n'a pas dit *quoi que ce soit*
 he NE has not said anything
 'He did not say anything'
 b. ?Il n'a pas vu **personne**
 he NE has not seen nobody
 'He did not see nobody'

NCEs in French are usually accompanied by *ne*. The presence of *ne* is not obligatory. It is usually left out in spoken French, especially in informal speech. In this respect French differs from a number of other NC languages, including Italian and Greek (for details on NC in these languages, see Zanuttini, 1991, and Giannakidou, 2000).

- (9) a. Pierre a vu personne [INFORMAL FRENCH]
 Pierre has seen nobody
 b. *(Non) ho visto nessuno [ITALIAN]
 not I-have seen nobody
 c. *(Dhen) ipa TIPOTA [GREEK]
 not said n-thing

It is not true, however, that *ne* is meaningless. *Ne* can be used as a negation in certain contexts, as illustrated in (10) (see Schapansky 2002):

- (10) a. Si je ne me trompe
 if I NE me mistake
 'If I am not mistaken'

- b. ^{FL}Je ne sais pourquoi/ Mon esprit amer/
 D'une aile inquiète et folle/ vole sur la mer. (Paul Verlaine)
 I NE know why/ my bitter soul/ with a worried and insane wing/
 flies over the sea
 'I don't know why etc.'

The crucial properties of NCEs and NPIs, playing an important role in the rest of this paper, are summarized below.

NEGATIVE CONCORD EXPRESSIONS

- P1^{NCE}**: give rise to single negation readings when used in combination with negative expressions
P2^{NCE}: can have negative force (answers, use without other negative operator)
P3^{NCE}: give rise to double negation readings in the context of *pas*

NEGATIVE POLARITY ITEMS

- P1^{NPI}**: give rise to single negation readings when used in combination with negative expressions
P2^{NPI}: do not have negative force
P3^{NPI}: give rise to single negation readings when used with *pas*

3 *Ni2* is not an NPI but an NCE

As discussed above, first sight evidence points towards an analysis of *ni* that distinguishes between the NCE *ni1* and the NPI *ni2*. Unless *ni1* is present, *ni2* cannot be used in bare coordination, and thus contrasts with NCEs such as *personne* 'nobody' (13a,b). Note that *ni2* also contrasts with Dutch *noch2*. The contrast between (13b) and (13c) suggests strongly that *noch2* has negative force while *ni2* does not.

- (13) a. Qui as-tu vu? – Personne
 'Who have you seen? – Nobody.'
 b. Qui as-tu vu, Jean ou Pierre? – *Jean ni Pierre/ Ni Jean ni Pierre
 'Who have you seen, Jean or Pierre? – Neither Jean nor Pierre.'
 c. Wie heb je gezien, Jan of Piet? – (Noch) Jan noch Piet
 'Who have you seen, Jan or Piet? – Neither Jan nor Piet.'

If we add to this that *ni2* is compatible with *pas* as shown in (2) above, the conclusion seems to be rather straightforward: *ni2* is an NPI.

However, if we consider the example in (14), this conclusion is untenable. *Ni2* turns out to function as a real negation whenever the first conjunct is negated in the discourse.

- (14) a. Qui est-ce qui va semer ce blé? dit la petite poule rouge. – Pas moi, dit le dindon. – Ni moi, dit le canard
 'Who will plant this seed? the little red hen asked. – Not me, said the turkey. – And not me, said the duck'
 b. ...mais qui donc osera y entrer le premier ? Ce ne sera pas moi. – Ni moi. – Ni moi. – Ni moi.
 'But who then dares to enter first ? It won't be me. – Me neither etc.'

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How can this observation be accommodated with the facts in (1), (2) and (13)? First, note that Dutch *noch2* fails to negate the first conjunct in some configurations as well. Whenever the conjunct preceded by *noch2* is extraposed, a separate negation for the first conjunct has to be included.

- (15) a. *Ik heb Jan gezien, noch Piet
I have Jan seen NOCH Piet
b. Ik heb Jan niet gezien, noch Piet
I have Jan not seen NOCH Piet
c. Ik heb noch Jan gezien, noch Piet
I have NOCH Jan seen NOCH Piet

The examples in (13)-(15) point towards a different analysis of (13b) and of the contrast between *ni2* and *noch2*. Both *ni2* and *noch2* need a negative first conjunct. *Ni* and *noch* differ in their capacity to negate the first conjunct. *Ni2* simply never negates the first conjunct, and hence the presence of a separate negation for the first conjunct is always necessary. On the other hand, *noch2* may license a negative reading of the first conjunct, but only in certain syntactic configurations. Whenever the two conjuncts do not form a constituent at the surface, as in (15), where the second conjunct has been extraposed, *noch2* depends on the presence of a separate negation for the first conjunct.

In a sense, *noch2* seems to be the more surprising case. How does a negative conjunction, that precedes the second conjunct, negate the first conjunct? I will leave this question aside, but wish to emphasize that the French pattern, in which *ni* is simply incapable to negate a first conjunct, but still requires the first conjunct to be negative, seems to be easier to explain, for instance in terms of a presupposition similar to the one introduced by expressions such as *also*. Note also that in older stages of French *ni* could be used with a positive first conjunct (see for instance Foulet 1977).

So far it has been shown that *ni2* behaves like an NCE with respect to negative force; it has $P2^{NCE}$ rather than $P2^{NPI}$. But what about $P3^{NPI}$? As shown in (2), *ni2* is compatible with *pas*, while normally NCEs are not. Given that *ni2* has negative force and thus should be analysed as an NCE, we do not expect it to be compatible with *pas*. Before turning to the French data, it is useful to look once more to the examples in (15). More in particular, the examples do not have a double negation reading on the second conjunct, showing that the second conjunct is not in the scope of the negation marking the first conjunct. This conclusion is not very surprising, as the second conjunct has been extraposed.

This immediately suggests an alternative analysis to the data in (2). As the second conjunct is sentence final, it might very well be compatible with *pas* because it has been extraposed. In that case *ni2* is outside of the scope of *pas*. *Pas* simply provides the independently necessary negation for the first conjunct. This hypothesis can be tested in various ways. Consider first the data in (18). The ungrammaticality of (18a) and (18b) show that *aucun* 'no' cannot be used in the scope of *pas*. This is in accordance with its NCE status. As soon as *ou* 'or' in (18b) is replaced by *ni*, as in (18c), the sentence is fine. This is strong evidence for the ideas put forward above. *Aucun* cannot be in the scope of *pas*, and thus the second conjunct in (16c) cannot be in the scope of *pas* and has to be extraposed. The extraposition of the second conjunct has two further

consequences. In the first place, *ni* is a negative conjunction, and in the second place, there is negative concord of *ni* and *aucun*.

- (16) a. ?*Jean n'a pas lu **aucun** livre de Diderot
 Jean NE-has not read no book of Diderot
 b. ?*Jean n'a pas [lu [*Candide* ou **aucun** livre de Diderot]]
 Jean NE-has not read *Candide* or no book of Diderot
 c. Jean n'a pas [lu *Candide*] [**ni aucun** livre de Diderot]
 Jean NE-has not read *Candide* NI no book of Diderot
 'Jean did not read *Candide* nor any book by Diderot.'

The hypothesis is further confirmed by the behaviour of coordinated subjects. In case extraposition is crucial for the compatibility of *ni* and *pas*, cases where the second conjunct is not sentence final and does not have an alternative analysis in terms of extraposition are expected to be excluded. This turns out to be true. Note that the impossibility of (17a) is really due to the presence of *pas* and not to the impossibility to license NPIs in subject position. As soon as *pas* is left out the sentence is fine.

- (17) a. *Pierre ni Marie n'ont pas pu participer au séminaire
 Pierre NI Marie NE have not been able to attend the workshop
 b. Pierre ni Marie n'ont pu participer au séminaire
 Pierre NI Marie NE have been able to attend the workshop

The conclusion so far is that *ni* is always a NCE. It has properties P2^{NCE} and P3^{NCE} and lacks P2^{NPI} and P3^{NPI}. The following sections will be devoted to the question how this special type of NCE interacts with other NCEs. In the first place, the interpretation of *ni* will be investigated. After that, some consequences for theories of NC will be explored.

4 The many appearances of *ni*

This section deals with the interpretation of *ni* in various contexts. It turns out that *ni* has, at least at first sight, different interpretations, depending on its scope position with respect to other NCEs. The interpretations it seems to have vary from *and not* to *or* and *and*, and varies with the quantificational context in which *ni* occurs.

Let us consider first the simple case, already illustrated in (14). (14a) is partly repeated in (18). In this type of example the interpretation of *ni* is interpreted as Boolean 'and' followed by a negation ($\wedge \neg$), plus the presupposition that the first conjunct has to be negative as well.

- (18) Pas moi, dit le dindon. – Ni moi, dit le canard CF. (14a)
 'Not me, said the turkey. – And not me, said the duck'

When *ni* is used in the scope of an NCE, it is equivalent to Boolean 'or' (\vee).

- (19) a. Personne n'a mangé ni bu
 nobody NE has eaten NI drunk

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- b. Personne n'a mangé **ou** bu
nobody NE has eaten or drunk
'Nobody ate **or** drank'
- c. NOx (ate(x) ∨ drank(x))

When *ni* has wide scope over two NCEs (usually in a coordination of *aucun N* and *aucun N*), the interpretation seems to be Boolean 'and' (\wedge):

- (20) a. Aucune réaction **ni** aucun effet ressenti
'No reaction **and** no experienced effect.'
- b. Il n'existe aucun vaccin **ni** aucun traitement contre cette maladie
'There exists no vaccin **and** no treatment against this illness.'
- c. NOx (reaction(x)) \wedge NOx (experienced effect(x))

Note that in this type of context both *et* and *ou* can be found as well. The possibility of *et* is not so surprising, but *ou* is not expected. This is, however, not related to the negative concord character of French, as similar disjunctions are found in Dutch and English, as shown in (22) (the data in (20)-(22) were found on internet). Given the interpretation of (21b) and (22a,b), *ou*, *of* and *or* have to be non-Boolean in these contexts. The non-Boolean interpretation of *or* will be left aside here, but see Alonso-Ovalle (2004).

- (21) a. Ce thème n'a été traité dans aucune émission, aucun livre **et** aucun article
'This theme has been treated in no emission, no book and no article'
- d. Aucune personne **ou!** aucun groupe n'est au-dessus de la loi dans notre société
'No person or no group is above the law in our society'
- (22) a. Hij vertoont geen enkel barstje **of!** geen enkel teken van een midlifecrisis
he shows not a single chap or not a single sign of a midlife crisis
- b. No person **or!** no situation is totally perfect

A final context, and also the most intriguing one, is provided by sentences such as (23a), in which *ni* has intermediate scope. Given the equivalence to Boolean 'or', we expect that same interpretation here. However, two quite remarkable things occur. In the first place, *ou* is not very good in this context, and in the second place, some speakers think *et* is a better alternative to *ni* than *ou*. In the English translation *or* is used, as expected.

- (23) a. Marie/personne n'avait jamais préparé aucune question **ni** aucun exercice
Marie/nobody NE had never prepared no question NI no exercice
- b. Marie/personne n'avait jamais préparé aucune question ? **et/ ?*ou** aucun exercice
'Marie had never prepared any question **or** any exercise.'

The pattern, however unclear it may be, is confirmed by what we find in NC Dutch. This variant of Dutch has particularly often sequences of the form *nooit geen* 'never no'. However, coordinations of the form *nooit geen N en/of nooit geen N* are extremely

rare, and usually contain *en*. All examples found with help of the search engine Google for “nooit geen * en geen” and “nooit geen * of geen” are listed in (24). Note that the only example containing *of* ‘or’ originates from a 19th century text by Gerrit van der Linde.

- (24) a. Nooit geen problemen **en** geen virii of spam op het netwerk hier
never no problems and no virusses or spam on the network here
‘There are never problems or virusses or spam on this network’
- b. Nooit geen roest **en** geen slijtage
never no rust and no wear
‘Never rust or wear’
- c. Ik heb nooit geen vader **of** geen schoondochter gehad
‘I never had a father or a daughter in law’

Speakers of this variant of Dutch prefer the use of *en* ‘and’ to the use of *or*:¹

- (25) a. ?Hij heeft nooit geen Engels en geen Frans geleerd
he has never no English and no French learned
- b. *?Hij heeft nooit geen Engels of geen Frans geleerd
he has never no English or no French learned

Even though the judgements are not very clear, we can conclude that in intermediate contexts *ni* is the preferred option. In NC-Dutch coordinations of NCEs within the scope of *nooit* are avoided, and if they are found, the conjunction seems to be the preferred option.

This section can be summarized by a list of what we know so far about *ni* and offers an overview of the properties that should be explained by a theory of negative concord.

P1^{Ni}: *ni* is an NCE

P2^{Ni}: it cannot take scope over the first conjunct, even though it presupposes the presence of a negative first conjunct

P3^{Ni}: out of the scope of negation, *ni* is roughly interpreted as ‘and not’

P4^{Ni}: in the context *ni* > NCE, *ni* is roughly interpreted as ‘and’

P5^{Ni}: in the context NCE > *ni*, *ni* is roughly interpreted as ‘ou’

P6^{Ni}: in the context NCE > *ni* > NCE: status unclear and preference for *ni* above other conjunctions

P7^{Ni}: consequence of P3^{Ni}: we are dealing here with a negation, not with a negative quantifier ranging over events (*and not*, not *and never*)

¹ Thanks to Henriëtte de Swart, Sergio Baauw, Marjoleine Alles and Joran van Hooijdonck for giving me judgements on this variety of Dutch. Note that speakers of this variety of Dutch interpret *noch* as if it means ‘or’ when used in the scope of negation. For speakers who do not accept NC (such as myself), *noch* is uninterpretable in the scope of negation:

- (i) %Niemand heeft gegeten noch gedronken
nobody has eaten NOCH drunk
‘Nobody ate or drank’ (or uninterpretable; double negation reading extremely hard to get)

5 *Ni* and the theoretical account of negative concord

In this section two approaches to negative concord will be examined in view of the data discussed above (for recent overviews of NC in the literature, see Corblin et al., 2004, and Zeijlstra, 2004). Given the data discussed so far, a theory of negative concord should account for the properties of *ni* listed above, as well as the three properties of negative concord expressions discussed in section 2. For reasons of space, the discussion will be restricted to two types of theories that at first sight at least are quite promising, even though the analysis of *ni* turns out to be problematic for both.² A number of properties will not be taken into account in what follows. Obviously all theories of NC account for the fact that a series of NCEs in a sentence yields a single negation, and the claim that *ni* is an NCE has been defended above. Furthermore, I assume that the second property of *ni* (presupposition of a negative first conjunct) is independent from the theory of NC.

5.1 NPI-based approaches

In the literature various theories of NC have been proposed that make use of NPIs. According to some researchers, all NCs are NPIs. This type of account, however attractive it is at first sight, is not very convincing in view of French. As shown in section 2, NPIs and NCs have a very different behaviour in French. Moreover, an independent negation (*non* in Italian and *dhen* in Greek) is not necessarily present. Analyses that make use of real ambiguity seem to be more promising (see Ladusaw 1992, Van der Wouden & Zwarts 1993 and Herburger 2001). In this type of theory, NCEs are ambiguous between a negative quantifier or negation and an NPI, as illustrated in (26), where the highest NCE is the licenser of the lower NCE; the first is a negative expression while the second is an NPI:

- (26) *Personne* (n')a rien vu
NO_x, ∃y (has seen (x,y))

It is clear that the first and the second condition on NCs are met (P1,2^{NCE}). However, it has often been indicated in the literature that this type of approach has problems accounting for the fact that French *pas* is incompatible with a non-negative reading of NCs (P3^{NCE}). Normally the sentential negation is one of the best licensers of NPIs, and the use of other NPIs such as *quoi que ce soit* is typically allowed in this context. This is one of the reasons why other theories such as the polyadic quantification theory have been developed (see Corblin et al., 2004, for discussion).

As for the properties of *ni*, the first relevant property (P3^{NI}: out of the scope of negation, *ni* is roughly interpreted as 'and not') suggests that negative *ni* means something like 'and not', or to be more precise, taking into account the presupposition with respect to the first conjunct, 'and not ... either'.

² Two accounts that I regret not to include are Déprez' (1998) analysis in terms of cumulative quantification and Zeijlstra's (2004) recent approach to NC. As shown below there is quite some evidence that *ni* involves a non-Boolean, scopeless conjunction. This is interesting in view of Déprez' idea that NCEs are essentially scopeless. On the other hand it is not immediately clear how *ni* should be accommodated in her theory, which only deals with negative quantifiers (see P7^{NI}).

When *ni* has scope over two NCEs (see P4^{Ni}), the interpretation of *ni* can be accounted for by assuming that the first of the NCEs functions as a negative quantifier, while the second is an NPI. This is illustrated in (27):

- (27) a. aucune réaction *ni* aucun effet ressenti (= (20a))
 b. NOx (reaction(x)) \wedge $\neg\exists y$ (experienced effect(y))

When *ni* is in the scope of another NCE, its interpretation is ‘or’, rather than ‘and’ (see P5^{Ni}):

- (28) a. Personne n’a mangé *ni* bu
 nobody ne has eaten NI drunk
 ‘Nobody ate or drank’
 b. Personne n’a mangé et bu
 ‘Nobody ate and drank’
 c. Personne n’a mangé ou bu
 ‘Nobody ate or drank’

There is a truth conditional difference between (28a) and (28b), but not between (28a) and (28c). With in an NPI based account, this implies that the NPI interpretation is ‘or’ rather than ‘and’. The question is of course why this is so, given the negative interpretation ‘and not’.

There are two ways to address this. In the first place, it might simply be the case that *ni* is ambiguous between *and not* and NPI *ou*. The flip-flop in meaning between the two would might be related to one of the Morgan’s laws, which is given in (29).

$$(29) \quad \neg p \wedge \neg q = \neg (p \vee q)$$

As a conjunction of two negated expressions is equivalent to a negated disjunction of the positive counterparts of these expressions, the change of meaning is not completely surprising. The negative variant of *ni* would be similar to a narrow scope negation in combination with a conjunction, while the NPI variant is a disjunction that needs to be in the scope of a negation.

A second approach would be the following. NC conjunctions entering in the scope of negation need not to be interpreted as non-Boolean conjunctions, as otherwise their scope interacts with negation in an undesirable way, again given the Morgan law in (29). Recently, the discussion of non-Boolean uses of conjunctions has been taken up by Szabolcsi & Haddican (2004). Szabolcsi & Haddican argue that Hungarian *és* is a non-Boolean conjunction, contrary to English *and*, based on the contrast in (30). The meaning of the coordination in (30b) is similar to a definite description and obtained via sum formation (see also Hoeksema 1988).

- (30) a. Mary didn’t take hockey **and** algebra
 a. can mean ‘Mary did not take hockey **or** didn’t take algebra’
 b. Mari nem járt hokira **és** algebrára
 Mari not went hockey-to **and** algebra-to

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- b. cannot mean ‘Mary did not take hockey **or** didn’t take algebra’
but can mean ‘Mary did not take hockey **and** did not take algebra’

The second way to account for the data in (28) is by assuming that *ni* is ambiguous between ‘and not’ and ‘and’ after all, but that the NPI *ni* does not correspond to Boolean *and*, but rather to non-Boolean *and* (represented as $\&^{\text{NB}}$), similar to Hungarian *és*.

- (31) NOx (ate(x) $\&^{\text{NB}}$ drank(x))

Even though at first sight appealing, this approach has a serious drawback (thanks to Arnim Von Stechow for pointing out the importance of this issue). As seen above, *ni* can be used to coordinate two quantificational expressions of the type *aucun N* when used under a negation, as in (23). This is not expected, as the quantificational status of the two conjuncts should prevent sum-formation and a definite interpretation of the two conjuncts. However, there are three arguments in favour of a non-Boolean approach that suggest that under certain conditions at least, non-Boolean conjunctions should be allowed to coordinate quantificational expressions. I will leave the analysis of this non-Boolean *and* for further research.

The first argument for the idea that at least some instances of non-Boolean *and* may coordinate two quantificational expressions is based on the distribution of *et* ‘and’ in French. Usually, *et* is Boolean. This explains the truth-conditional difference between (28b) and (28c). However, there are contexts, in which we expect to find *ou* given the intended semantics, but we still find *et*, as in (32a). This is so in contexts where *et* is embedded under *sans*. Interestingly, in these cases *et* can conjoin two expressions of the form *aucun N*, as in (32b). The need for a non-Boolean interpretation of *et* in these sentences is clear when comparing their interpretation to the examples in (30):

- (32) a. essence sans plomb et additifs
petrol without lead and additives (no lead and no additives)
b. sans aucun médicament et aucun régime alimentaire
without no medicins and no alimentary regime
(no medicins and no alimentary regime)

The second argument is that, again in the context of *sans*, a double negation above *ni* leads to the reading *or*, as shown in (33) and (34):

- (33) Ce n’était pas sans intérêt ni beauté
‘It wasn’t without interest or beauty’ $\neg \neg [p \text{ NI } q] = p \wedge q$ (and not: $p \vee q$)

- (34) a. Nous ne pouvons pas commencer sans Jean ni Pierre
we NE can not start without Jean NI Pierre
‘We need both Jean and Pierre to be present before we can start.’
b. Nous ne pouvons pas commencer sans Jean ou Pierre
we NE can not start without Jean or Pierre
‘We need either Jean or Pierre to be present before we can start.’

These examples are particularly interesting, especially when seen in contrast with (28). If the NPI meaning of *ni* were simply ‘or’, the reading of ‘ $p \text{ NI } q$ ’ under a double negation

(that is, two negations that cancel each other out) should be ‘p or q’ and not ‘p and q’. An analysis in terms of &^{NB} predicts exactly that under a single negation *ni* resembles *ou*, while outside of the scope of negation and under a double negation, *ni* resembles *et*.

A final argument in favour of an approach in terms of &^{NB} comes from the diachronic development of *ni*. Even though the predecessor of *ni*, *ne*, used to be an NPI in all of its uses, the ambiguity between *and* above the scope of negation and *or* below the scope of negation already existed (see Foulet, 1977). The following examples (Einhorn, 1974) illustrate this point. In (35a) the use of the NPI is licensed by a wide scope negation and the interpretation is *or* and in (35b) the use of *ne* is licensed by the fact that it introduces a question, and here the interpretation is *and*. These facts suggest that OF *ne* was a (weak) NPI, meaning &^{NB}.

- (35) a. J n’os Dieu reclamer ne ses saintz (XIIIth century French)
I not dare god call-on NE his saints
‘I do not dare to call on God **or** his saints’
- b. Dont estes vos, ne que querez? (XIIIth century French)
from-where are you NE what do you want?
‘Where are you from **and** what do you want?’

The last context in which *ni* can be used is the intermediate scope context. As shown above, the interpretation of *ni* in these contexts is not so clear. The most important observation was the strong preference for the use of *ni* in this context. The relevant data are given in (23) and repeated in (36):

- (36) a. Marie/personne n’avait jamais préparé aucune question **ni** aucun exercice
Marie/nobody NE had never prepared no question NI no exercice
- b. Marie/personne n’avait jamais préparé aucune question ? **et** / ?***ou** aucun exercice
‘Marie had never prepared any question **or** any exercice.’

Where does the preference for *ni* come from, given that no such preference is found in other contexts? Ordinary NPIs do not have this property and *ou* can be freely used in the scope of a negation (37a). A small internet search confirms the difference in pattern (37b,c).

- (37) a. Je n’ai aucun esprit de revanche contre qui que ce soit ou quoi que ce soit
I NE have no hard feelings towards whoever or whatever
- b. Google hits: “qui que ce soit ou/ et/ ni quoi que ce soit”:
strong preference for *ou*: *ou*: 173/ *et*: 22/ *ni*: 37
- c. Google hits: jamais aucun * ou/ et/ ni aucun”
strong preference for *ni*: *ou*: 2/ *et*: 1/ *ni*: 33

The discussion of NPI-based theories can end with a positive note: the fact that *ni* is a conjunction fits in this theory very well. NPIs are known to be of various categories. Also, the NPI origin of these expressions is in accordance with this type of theory.

We may conclude that a theory that takes NCEs to be ambiguous between negative expressions and NPIs has a number of strong points in view of the analysis of *ni*. The

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main problem of this type of analysis is that it fails to explain the strong preference for *ni* in contexts such as (36). Furthermore, as pointed out already in the literature, NPI-based theories in general fail to predict the fact that NCEs give raise to double negation readings in the context of *pas*. I will come back to this point in the next section.

5.2 NC in terms of polyadic quantification

De Swart & Sag (2002) argue that NC does not involve negative polarity, but really constitutes a different way of quantification: polyadic quantification. All negative expressions are taken together and form a single polyadic negative quantifier, as in (38):

- (38) Personne n'a rien vu

$$\text{NO} \left\{ \begin{array}{l} \text{person}(x), \text{thing}(y) \\ x, y \end{array} \right. \text{ has seen}(x, y)$$

An important advantage of this theory over the previously discussed one is that this theory predicts that a small set of expressions allows for NC readings when used together. These expressions can be part of a polyadic quantifier. *Pas*, which cannot take part in the process of polyadic quantifier formation is thus excluded from the whole process and always introduces an extra negation. Thus, with respect to $P3^{\text{NCE}}$ (the one that says that *pas* yields double negation readings when used with an NCE) the polyadic quantification analysis seems to be preferred.

It has to be noted, however, that NCEs are found in typical NPI contexts, other than *pas*. For instance, adjectives such as *incapable* and even negated adjectives such as *pas capable* license the use of an NCE in their complement clause (see Herburger 2001 for similar data in Spanish). This shows that the question with respect to *pas* and its consequences for the theory of NCE one choses needs further investigation.

- (39) a. Il est incapable/pas capable de rien faire/ faire quoi que ce soit
 'He is not capable of doing anything'
 b. Par miracle, il refonctionne mais je suis incapable de dire ni pourquoi ni comment
 'Surprisingly, it functions again but I am incapable to say why or how'

When considering polyadic quantification in the light of *ni* an important question one has to ask is whether the negations on the two conjuncts are part of the same polyadic quantifier or not. The two possibilities are illustrated in (40):

- (40) a. Pierre n'a ni mangé ni bu
 b. $\neg \text{ate}(\text{Pierre}) \wedge \neg \text{drank}(\text{Pierre})$
 c. $\neg [\text{ate}(\text{Pierre}, e1) \ \&^{\text{NB}} \ \text{drank}(\text{Pierre}, e2)]$

There is an important argument against the second approach. Note that De Swart & Sag argue that the negative quantifiers in a sentence are first stacked and then interpreted either as a polyadic quantifier or a series of negative quantifiers the first of which has scope over the second and so on. Hence the theory predicts that two negative quantifiers only form a polyadic negative quantifier in case the first can have scope over the other

as well. It is a known fact that coordinations do not allow an expression in the first conjunct to take scope over an expression in the second conjunct (see Progovac 2000). Hence, the type of analysis in (40b) seems to be preferred.

The ‘and not’ and ‘and’ interpretations are not problematic in this view. The basic meaning of *ni* is again ‘and not’. In contexts such as (20a), a polyadic quantifier is formed in the second conjunct, yielding a single negation reading for *ni* and *aucun*. *Ni* and the second *aucun* form a polyadic quantifier. If we pursue this approach in cases where *ni* is in the scope of an NCE, some problems arise. What we should get to is a representation along the lines of the one in (42b). As *ni* is a negation and not a negative quantifier, *ni* introduces no variable, which is indicated by 0. However, it is far from obvious how this representation can be obtained.

- (42) a. Personne n’a ni mangé ni bu
 b. NO $\left\{ \begin{array}{l} 0, \text{person}(x) \\ 0, x \end{array} \right.$ ate(x) ^
 NO $\left\{ \begin{array}{l} 0, \text{person}(x) \\ 0, x \end{array} \right.$ drank(x)

On the other hand, the preference for *ni* in contexts where *ni* is in an intermediate position between two other NCEs (see (23)/(36)). Note that within a polyadic approach, the question how the two negative quantifiers in the two conjuncts and the wide scope negative quantifiers should be analysed is similar to the question raised by the polyadic analysis of *ni*. Should these two *aucun* *N* expressions be part of the same polyadic quantifier or do we have a structure similar to (36)? If the polyadic analysis can be maintained, the analysis might offer an explanation for the preference for *ni* in this type of context. Consider the following data, involving ellipsis and extraposition, which might give an indication how the polyadic analysis might be saved:

- (43) Niemand ging naar het park gisteren ?of/ en *(ook niet)/ noch naar de markt
 nobody went to the park yesterday or/ and (also not)/ nor to the market

The second conjunct is intended to mean ‘and nobody went to the market’. For that we need a conjunction, a negation and an expression indicating the presupposition that the first conjunct is negative as well. In other words: we need *ni*.

6 Conclusions

I argued in this paper that *ni* is always an NCE, and that its interpretation seems to vary with its relative position with respect to other negative expressions in a sentence. The observational part of the paper led to a number of desiderata for theories of negative concord. Two theories have been investigated in some detail: the theory according to which NPIs are ambiguous between a negative reading and an NPI reading (o.a. Ladusaw 1992), and the polyadic quantification approach (De Swart & Sag 2004). Even though both theories encounter problems with *ni*, the balance seems to go slightly towards the ambiguity approach. Further research is necessary, in which ‘special’ NCEs such as *ni* should play a major part.

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