Why Affixal Negation is Syntactic[*]

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Abstract We address a long-standing puzzle in gradable adjectives, which is that positive adjectives may be prefixed with *un*, but negative ones cannot, although negation of positive and negative adjectives alike is possible with *not*. We present a nanosyntactic account of this restriction that assumes the presence of a [Neg] feature in negative adjectives. We further show that restrictions on stacking multiple negative markers are sensitive to the scope of these markers, such that they cannot be stacked if they take scope in the same position, but can be stacked if they are separated by intervening levels of structure. We account for this by formulating a restriction against the occurrence of two immediately consecutive [Neg] features in the functional sequence.

1 The Problem

The problem we want to address is that positive adjectives may be prefixed with *un-*, but negative ones cannot (Jespersen 1942; Zimmer 1964; Horn 2005). Negation of positive and negative adjectives alike is possible, though, with *not*.

(1)	a.		b.		c.	
		unhappy		*unsad		not sad
		unfriendly		*unhostile		not hostile
		untrue		*unfalse		not false
		unkind		*unrude		not rude
		unhealthy		*unsick		not sick

Existing accounts of this pattern, such as the ones in (2) and (3) below, assume that there exists some fundamental distinction between affixal and other types of negation.

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(2)   "Negative affixes are not used with adjectival stems that have a negative value." (Zimmer 1964: 15)

(3)   "The stem to which a relatively nonproductive negative affix can attach tends to be an UNMARKED, WEAK POSITIVE scalar value." (Horn 1989: 286)

These proposals (or empirical generalisations) are inadequate for two reasons. First, they are restricted to affixal negation (explaining (1c)), but we shall show that the pattern in (1) can be observed both with morphological and syntactic negation. Second, we believe that it is not a coincidence that negative markers are excluded with negative adjectives. The facts in (1) to us suggest the existence of a ban on double negation within a local domain, not only with respect to affixal negation, but with respect to all kinds of negative markers. We shall argue that they are to be accounted for in terms of the following constraint on double negation:

(4)   *⟨Neg, Neg⟩
        The functional sequence must not contain two structurally adjacent Neg-features.

It stands to reason that this ban itself is a particular instantiation of a more general restriction that can be formulated as follows:

(5)   *⟨X, X⟩
        The functional sequence must not contain two structurally adjacent identical features.

Our proposal is couched in the framework of nanosyntax, which, for reasons of space, we cannot introduce here; we refer the reader to Starke (2009; 2011); Caha (2009); Baunaz & Lander (to appear) for more background. In section 2, we first present more evidence that is relevant to the data set in (1). Next, in section 3, we lay out the prerequisites for our analysis, which we shall subsequently introduce in section 4. Section 5 presents further support for the account.

2   More data

The data in (1) are part of a larger paradigm that provides evidence for the existence of a ban on stacking multiple negative affixes that are structurally, not linearly, adjacent. One can see this restriction in the impossibility of

stacking the negative prefixes *un-* and *dis-* on top of one another, as shown in (6a). Apparent exceptions, as in (6b), involve cases where the affixes are not structurally adjacent, but separated by an additional layer of structure, as shown in (7) (Siegel 1977).

(6)   a. *undishonest, *undiscourteous, *undisloyal, *undiscomfortable
       b.   undisclosed, undisputed, undiscoverable, undiscouraged

(7)   a. *[$_A$ un [$_A$ dis [$_A$ honest]]]
       b.   [$_A$ un [$_A$ [$_V$ dis [$_V$ close]] d]]

Similar cases involving *un-* and *iN-* are given in (8):

(8)   a. *unirreligious, *unillegitimate, *unillogical, *unimpossible, *un-incoherent
       b.   uninconvenienced, unincapacitated, uninhibited

The relevance of structural as opposed to linear adjacency is further confirmed by the impossibility of stacking the negative prefix *un-* on the negative suffix *-less*, which contrasts minimally with the suffix *-ful* in this respect:

(9)   a. *unuseless, *unbreathless, *unsenseless, *unmerciless, *uncheer-less
       b.   uneventful, unfaithful, unhelpful, unlawful, unsuccesful

(10)   a. [$_A$ un [$_A$ [$_N$ use] less]]
       b.   [$_A$ un [$_A$ [$_N$ event] ful]]

Despite not being linearly adjacent, the negative affixes *un-* and *-less* are structurally adjacent, whence the deviance of (10a). Predictably, multiple occurrences of the same negative affix are also excluded, except if they are not structurally adjacent, as in (11b):
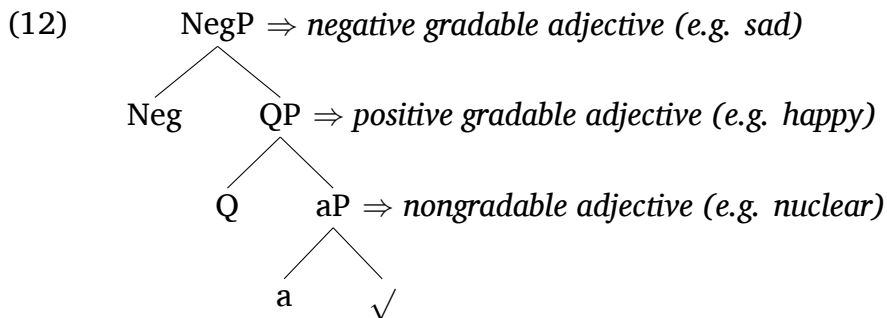
(11)   a. *ununhappy, *disdishonest, *breathlessless
       b.   ?ununcovered, ?ununlocked, ?unundoable, ?ununfolded

We shall argue that the data discussed in this section instantiate the same restriction as the data in (1) above, i.e. a restriction against two structurally adjacent Neg-features. In particular, we shall argue that negative adjectives spell out a Neg-feature.

3   Prerequisites

3.1   Positive and negative adjectives: a difference in size

We assume that the difference between positive and negative adjectives is a difference in the size of the tree, i.e. the number of features they spell out. This is shown in the representation below, which shows the hierarchy of features that we assume: starting from the bottom, these are a root feature, a categorial head feature, a Q-feature, and a Neg-feature. Double arrows informally represent spellout relations.

(12)   NegP $\Rightarrow$ *negative gradable adjective (e.g. sad)*

        Neg   QP $\Rightarrow$ *positive gradable adjective (e.g. happy)*

            Q   aP $\Rightarrow$ *nongradable adjective (e.g. nuclear)*

              a $\sqrt{}$

We shall not discuss the root feature and the categorial head feature, since they are not crucial to our concerns. The feature Q is added on top of aP and adds gradability. This feature is nonselective, and may be added on top of adjectives, nouns, verbs, and prepositional constituents (see Neeleman et al. 2006). Q denotes a positive quantity. Evidence for Q is found in the fact that gradable adjectives denote a high degree (e.g. Cresswell 1976; Seuren 1978; Bresnan 1973; Kennedy 1999; Kennedy & McNally 2005, etc.). For example, the sentence *John is tall* does not mean that John has a degree on the scale of tallness, but rather that John's degree of tallness is above the standard degree of tallness. In other words, the sentence means something like *John is MUCH tall* (Bresnan 1973). A second argument for the presence of Q is the phenomenon of *much*-support (Corver 1997), illustrated in (13).

(13)   John is fond of Mary. Maybe he is too *much* so.

We assume that *much* spells out QP, and the pro-form *so* a smaller constituent (aP). Positive gradable adjectives also spell out QP (as shown in (12)). Since these adjectives already spell out the Q-feature that *much* spells out, we derive the impossibility of **much tall*.[1]

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[1] The full derivation of this result requires an extra step in the argument, which we shall present in section 4.

3.2 The nanosyntax of negation

Languages quite often have a variety of negative markers (e.g. English *not, non-*, and *un-*), which take scope in different positions (e.g. sentence negation vs constituent negation). In a comparative study of negative markers, De Clercq (2013) has identified four different categories of negative markers based on their functions, semantics, scope, and differences in stackability.

(14)

marker	scope	stackability
T^{Neg}-markers	sentential scope	on all the others
Foc^{Neg}-markers	untensed predicate	on $Class^{Neg}$ and Q^{Neg}-markers
$Class^{Neg}$-markers	predicate term	on Q^{Neg}-markers
Q^{Neg}-markers	lowest scope	do not stack

Studying syncretisms in negative markers in a sample of nine different languages, De Clercq (2013) has found that negative markers can be arranged in a paradigm that respects the *ABA-restriction, which restricts syncretism to contiguous cells. This is shown in the table below:

(15)

	T^{Neg}	Foc^{Neg}	$Class^{Neg}$	Q^{Neg}
Greek	dhen	oxi	mi	a-
English (formal)	not	not	non	un-
English (informal)	n't	not	non	un-
French (formal)	ne …pas	pas	non	iN-
French (informal)	pas	pas	non	iN-
Chinese	bù	bù	fēi	fēi
MS Arabic	laa	laa	ghayr-	ghayr-
Persian	na	na	qheyr-	qheyr-
Moroccan Arabic	ma (ši)	muši	muši	muši
Dutch	niet	niet	niet-	on-
Hungarian	nem	nem	nem	-tElEn
Czech	ne-	ne	ne-	ne-

At the top of the table, we find Greek, which does not show any syncretism, and therefore provides evidence for the existence of four different types of negation. At the other extreme, we find Czech, wich has a single syncretic negative marker (*ne-*).

(16) a. Ja ne- jsem št'astný.
         I NEG- am happy.
         'I am not happy.'

    b.   Ja jsem ne- št'astný.
             I   am   NEG- happy.
             'I am unhappy.'

    c.   Je ne- americký.
             is NEG American
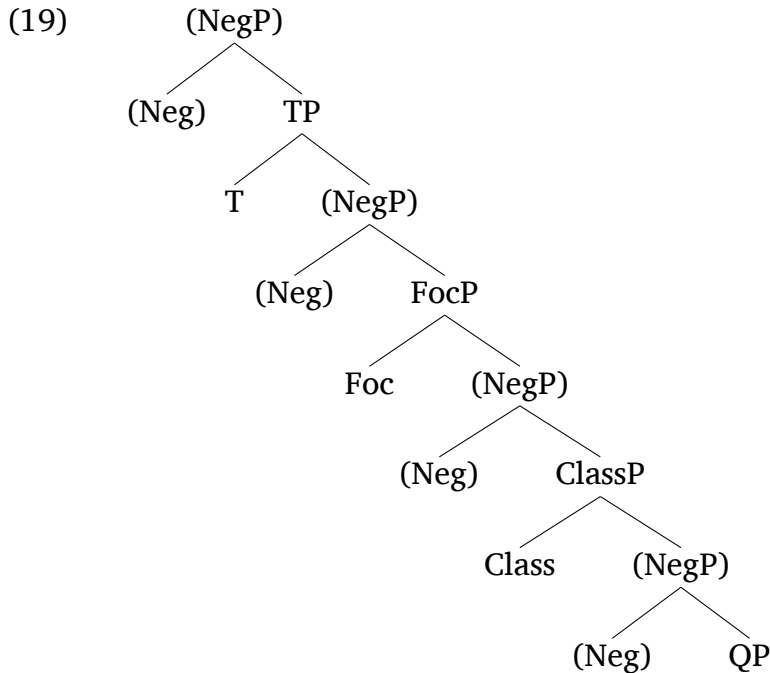   'He is un-American.'
             'He is non-American.'

The Czech-type syncretism shows that there has to be an underlying featural unity to all these negation types. This underlying featural unity resides (minimally) in the presence of the feature Neg. However, the Neg-feature is never spelled out alone: the different negative markers represent packagings of Neg with different sets of features, which we take to be T, Foc, Class, and Q. We assume that these features form a functional sequence $\langle$T, Foc, Class, Q$\rangle$. Negative markers are built by adding a negative feature Neg on top of either QP, ClassP, FocP, or TP, as illustrated by the lexical tree structures for the English negative markers given in (17):

(17)   a.   [$_{NegP}$ Neg [$_{TP}$ T [$_{FocP}$ Foc [$_{ClassP}$ Class [$_{QP}$ Q]]]]] $\Rightarrow$ *not*
         b.   [$_{NegP}$ Neg [$_{ClassP}$ Class [$_{QP}$ Q]]] $\Rightarrow$ *non*
         c.   [$_{NegP}$ Neg [$_{QP}$ Q]] $\Rightarrow$ *un-*

    The negative marker *not* is syncretic and can spell out both the syntactic structure in (18a) and (18b) in virtue of the Superset Principle (Caha 2009).

(18)   a.   [$_{NegP}$ Neg [$_{TP}$ T [$_{FocP}$ Foc [$_{ClassP}$ Class [$_{QP}$ Q]]]]] $\Rightarrow$ *not*
         b.   [$_{NegP}$ Neg [$_{FocP}$ Foc [$_{ClassP}$ Class [$_{QP}$ Q]]]] $\Rightarrow$ *not*

This represents the internal syntax of negative markers. Negative markers also have an external syntax in virtue of their position in the clausal spine. We take the clausal spine to feature the exact same functional sequence as present in the lexical trees of the negative markers, including the potential presence of a NegP at each successive level:

(19)

```
                    (NegP)
                   /     \
              (Neg)       TP
                         /  \
                        T   (NegP)
                            /    \
                       (Neg)     FocP
                                /    \
                             Foc    (NegP)
                                    /    \
                               (Neg)     ClassP
                                         /     \
                                    Class      (NegP)
                                               /    \
                                          (Neg)     QP
```

By default, the functional heads are interpreted affirmatively, but they can be made negative by adding a NegP on top of them. Negative markers have the internal structure as shown in (18), and take scope in the clausal spine in the positions shown in (19). The internal make-up of each negative marker determines its scope position: *not* takes scope in TP or FocP, *non* takes scope in ClassP, and *un-* takes scope in QP. This follows from the principle that the highest non-negative feature in the nanospine indicates the scope position in the main spine. Having thus outlined the nanosyntax of negation, we now turn to an account of the problem sketched in section 1 above.

4   The account

We take *un-* to be the spellout of a Q and a Neg-feature. This prefix is merged in a parallel derivation and then merged as a specifier of a Neg-head on top of the QP that spells out *happy*. The resulting representation is shown in (20). Merging the *un-* prefix on top of a negative adjective, however, as would be needed to derive **unsad*, will lead to the illicit derivation in (21).

(20)

```
                              NegP
                        ┌──────────┴──────────┐
            un- ⇐ NegP_un                    Neg′
                   ┌────┴────┐          ┌──────┴──────┐
                 Neg        QP        Neg           QP ⇒ happy
                            │                    ┌────┴────┐
                            Q                    Q        aP
```
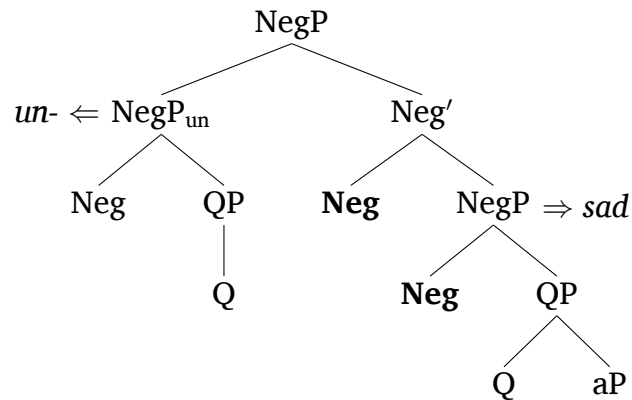
(21)

```
                              NegP
                        ┌──────────┴──────────┐
            un- ⇐ NegP_un                    Neg′
                   ┌────┴────┐          ┌──────┴──────┐
                 Neg        QP        **Neg**       NegP ⇒ sad
                            │                    ┌────┴────┐
                            Q                  **Neg**    QP
                                                      ┌────┴────┐
                                                      Q        aP
```
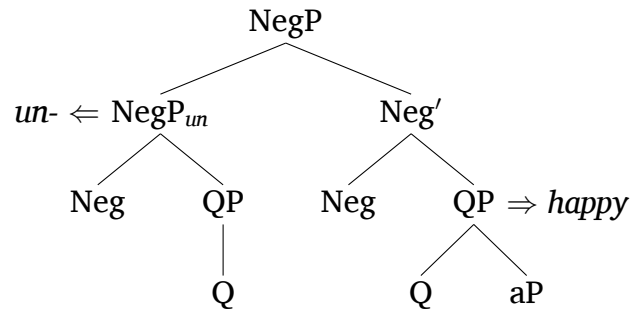
The problem with (21) is that it violates the restriction that we proposed in (4), since we now have a functional sequence with two immediately consecutive Neg-features. In contrast, it is possible to negate negative adjectives with the sentential negative marker *not* to yield *not sad*. This is because *not* spells out additional features, and, as a result, takes scope at TP or FocP (Belletti 2004). The resulting representation is given in (22); this structure does not lead to a violation of (4).

(22)

```
                        AgrSP
                   ╱          ╲
                NP              AgrS′
              John           ╱       ╲
                          AgrS         NegP
                           is       ╱       ╲
                    not ⇐ NegP           Neg′
                        ╱      ╲        ╱      ╲
                     Neg        TP   Neg        TP
                            ╱      ╲         ╱      ╲
                           T       FocP     T       FocP
                                ╱      ╲          ╱      ╲
                             Foc       ClassP   Foc        vP
                                      ╱     ╲           ╱      ╲
                                  Class      QP        v       ClassP
                                                            ╱        ╲
                                                       Class          NegP ⇒ sad
                                                                    ╱        ╲
                                                                 Neg          QP
                                                                            ╱     ╲
                                                                           Q       aP
```
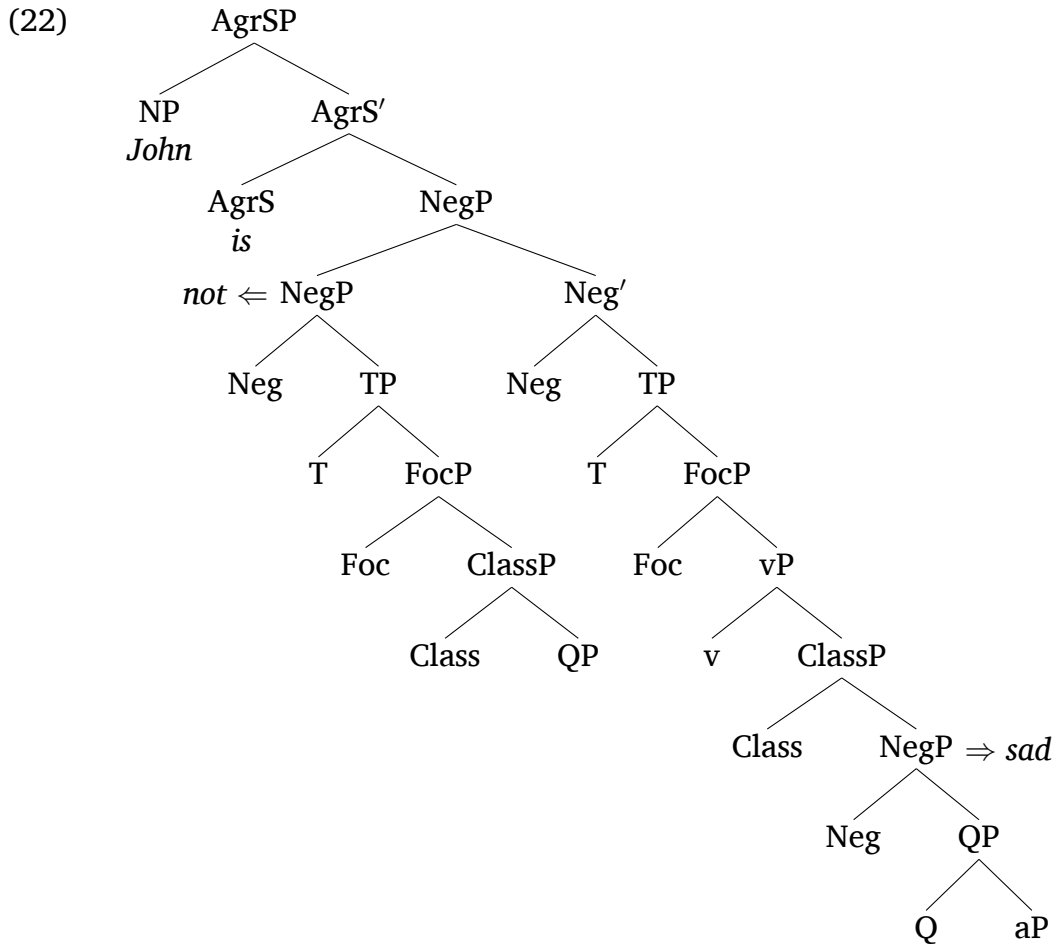
A similar analysis holds for cases with multiple negative affixes. We il-
lustrate this for the case of *un + A + less*. The suffix *-less* derives negative
gradable adjectives from nouns in virtue of spelling out the features Neg,
Q, and a. The resulting derivation is shown in (23):[2]

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[2] This derivation omits some irrelevant details, such as the spellout-driven movement of nP
into the spec of NegP that is needed to derive the suffixal nature of *-less*.

(23)

```
                                NegP
                         ╱            ╲
               un- ⇐ NegP              Neg′
                    ╱    ╲          ╱        ╲
                 Neg    QP       Neg      NegP ⇒ -less
                         │               ╱      ╲
                         Q             Neg      QP
                                             ╱      ╲
                                            Q       aP
                                                 ╱      ╲
                                                a     nP ⇒ use
```
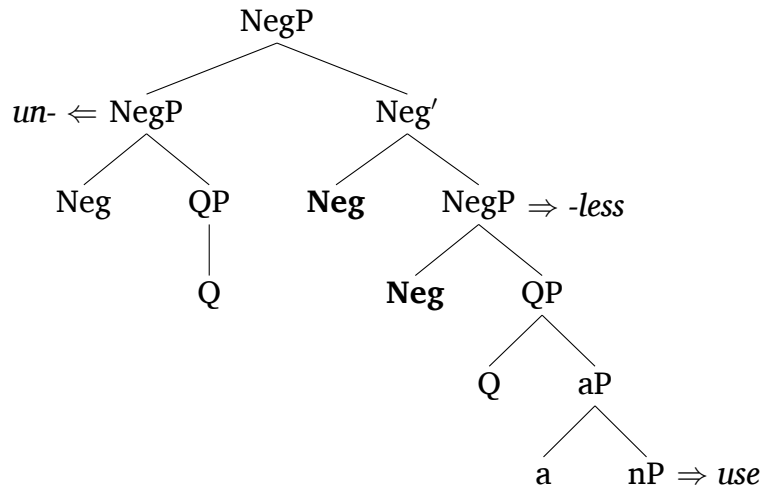
At this point, we briefly return to the issue of the impossibility of *much tall*. Earlier we derived this from the fact that the gradable adjective already spells out the Q-feature, so that *much* is not needed. But an alternative derivation could be envisaged, in which the QP that spells out as *much* is merged as a complex specifier of a gradable adjective like *tall*, itself also a QP. This would require, however, the introduction of a second consecutive Q-head in the functional superstructure of the adjective. This would, in other words, be a case that violates the restriction in (5) above, which bans two immediately consecutive identical heads in the functional sequence. It also confirms our earlier suggestion that (4) generalizes to (5).

5   Further support

The restriction we proposed in (4) above does not make reference to the morphological or syntactic nature of the negation. In this respect, it differs from the proposals by Zimmer and Horn (given in (2) and (3) above, respectively). Instead, we suggest that the possibility of stacking negative markers on top of one another or on top of negative adjectives is related to their scope: if they have different scopes, stacking is possible because intervening structure will separate the Neg-heads, if they have the same scope, stacking will be impossible. This predicts that a syntactic negation which takes low scope should be incompatible with low-scope affixes or with negative adjectives. This prediction is confirmed by a case of low-scope syntactic

negation in French and Dutch, which concerns the Q-adjectives (Solt 2015). The English system of Q-adjectives is given in (24):[3]

(24)

	equative		comparative		superlative	
	count	mass	count	mass	count	mass
positive	many	much	more		most	
negative	few	little	fewer	less	fewest	least

Of these, we discussed *much* above, stating that is is the spellout of QP. In English, neither *much* nor *little* can modify adjectives, for reasons that need not concern us here. In Dutch and French, however, the polar opposites of *much*, namely *weinig* and *peu* 'little' can modify adjectives. The systems of the Q-adjectives in Dutch and French are given in (25) and (26), respectively:

(25)

	equative		comparative		superlative	
	count	mass	count	mass	count	mass
positive	veel		meer		meest	
negative	weinig		minder		minst	

(26)

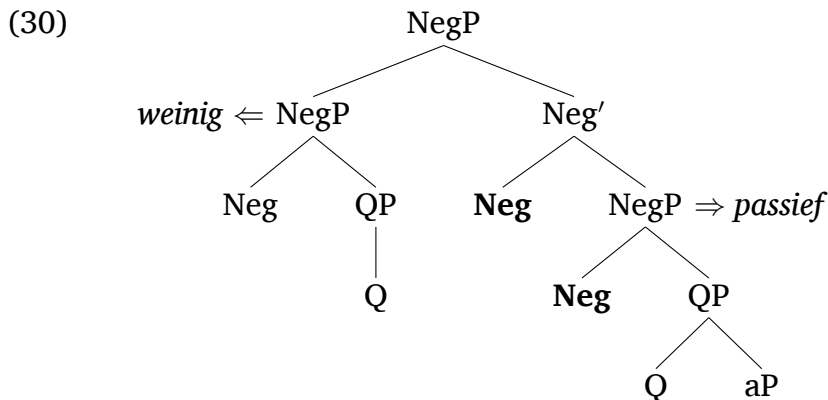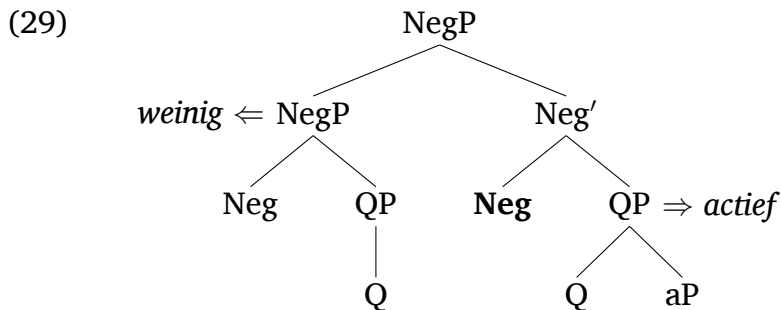|	equative		comparative		superlative	
	count	mass	count	mass	count	mass
positive	beaucoup		plus		le plus	
negative	peu		moins		le moins	

In line with our earlier proposals concerning negative adjectives, we assume that the negative Q-adjectives *weinig* and *peu* 'little' spell out a Neg and a Q feature. This makes these items low scope negators with a scope identical to that of *un-*, i.e. at QP. We therefore expect them to be incompatible with negative adjectives, a prediction which is borne out:

(27)

	actif/*passif	'active/passive'
	aimable/*hostile	'friendly/hostile'
	clair/*embrouillé	'clear/confused'
peu	tolérant/*intolérant	'tolerant/intolerant'
	patient/*impatient	'patient/impatient'
	content/*mécontent	'satisfied/dissatisfied'
	heureux/*malheureux	'happy/unhappy'

---

[3] In the table we replace the more common term 'positive degree' with the term 'equative', so as to avoid confusion with the term 'positive' on the first row of the table.

(28) actief/*passief   'active/passive'
      correct/*verkeerd   'correct/wrong'
      interessant/*saai   'interesting/boring'
weinig duidelijk/*onduidelijk 'clear/unclear'
      geduldig/*ongeduldig   'patient/impatient'
      nuttig/*nutteloos   'useful/useless'
      zinnig/*zinloos   'sensible/senseless'

Observe that the negative adjectives in question include lexically negative ones, as well as derived negative ones, i.e. adjectives with a negative prefix or suffix (e.g. French *iN-, mé-, mal-,* or Dutch *on-* and *-loos*). These data are explained by our account under the assumption that *peu* and *weinig* 'little' are the phrasal spellout of Neg + Q. Merging these in the Spec of a negative adjective leads to a violation against the ban on double negation in (4). The derivation which respects (4) is given in (29), and the one that violates it in (30):

(29)

```
                        NegP
               ┌─────────┴─────────┐
    weinig ⇐ NegP                 Neg′
          ┌────┴────┐        ┌──────┴──────┐
        Neg        QP      Neg         QP ⇒ actief
                    │                 ┌───┴───┐
                    Q                 Q       aP
```

(30)

```
                        NegP
               ┌─────────┴─────────┐
    weinig ⇐ NegP                 Neg′
          ┌────┴────┐        ┌──────┴──────┐
        Neg        QP      Neg        NegP ⇒ passief
                    │                ┌───┴───┐
                    Q              Neg       QP
                                        ┌────┴────┐
                                        Q         aP
```

The cases with affixally negative adjectives work similarly, in that they require the introduction of two consecutive Neg-heads in the functional sequence to accommodate the two negative markers as complex specifiers with Q-scope. The polarity sensitivity of the syntactic negators *weinig* and

peu 'little' shows that the relevant restriction does not involve the morphology-syntax divide, but needs to be formulated in terms of the scope of the negative marker, in the way we propose.

6   Conclusion

We presented an account for the pattern in (1) above in terms of the general constraint against two successive Neg-features in the functional sequence. We showed how existing accounts of this pattern, such as the ones by Zimmer and Horn, are incomplete in two respects. For one thing, they account for the contrast between *un-* and *not* in (1) in terms of a morphology-syntax distinction. However, as we have shown, this does not make the correct cut in a number of cases. The relevant factor is instead the position where a negative marker takes scope. For another, it is a coincidence under Zimmer's and Horn's formulation that negative affixes are incompatible with negative adjectives. In our analysis, there is a principled ban on two immediately consecutive Neg-features in the functional sequence, which in turn generalizes to a restriction against two identical features in the functional sequence in general.

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