# Types of negation

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## Abstract

This paper discusses the well-known dichotomies between sentence negation and constituent negation on the one hand and external negation and internal negation on the other hand. It explains how the notions differ and where they show overlap. Crucial in this discussion is the presentation and critical review of some of the most relevant tests for negation as discussed by Klima (1964). The discussion leads to the observation that both sentence negation and constituent negation are umbrella terms for multiple scopal types of negation. The paper further shows how a careful analysis of negative morphology can be insightful in putting up a more fine-grained classification that does better justice to the reality of negative markers than captured by the well-known dichotomies.

Keywords: sentence negation – constituent negation – external negation - internal negation – syncretisms - polarity

## 1. Introduction[1]

Klima's (1964) well-known distinction between *sentence* and *constituent* negation has determined the syntactic and semantic literature on negation for

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the past decades. The distinction is based on four well-known syntactic tests: the *either/too*-test, (1), the *not even*-test, (2), the question tag test, (3), and the *neither*-test. Sentences which can combine with *(n)either*, positive question tags and *not even* give rise to sentence negation, cf. the *a*-examples, whereas those that cannot are either affirmative, cf. the *b*- examples, or consist of a constituent negator, which is a broad term encompassing also cases of affixal negation, cf. the *c*-examples.(Klima 1964: 261-265/271)

(1)   a.   Publishers will *usually/always/not* reject suggestions, and writers will *not/scarcely/hardly/ never/seldom/rarely* accept them *either/*too*.
       b.   Writers will *never* accept suggestions, and publishers will *always/surely/usually/commonly* reject them *\*either/too*.
       c.   *Publishers will *unintentionally* reject suggestions, and writers will *unintentionally* reject them *either*.

(2)   a.   The writer will *not/never/seldom/rarely* accept suggestions, not even reasonable ones.
       b.   *The publisher *often/commonly* disregards suggestions, not even reasonable ones.
       c.   *Writers are unreceptive to suggestions, not even good ones.

(3)   a.   Writers will never accept suggestions, will they/ *won't they?
       b.   Publishers will surely reject suggestions, *will they/ won't they/ will they not?
       c.   *Writers unfortunately reject suggestions, do they?

(4)   a.   Writers won't be accepting suggestions, and neither will publishers.
       b.   *Writers will always be accepting suggestions, and neither will publishers.
       c.   *Writers will unfortunately always be accepting suggestions, and neither will publishers.

Basically, the Klima-tests distinguish between negative markers that have wide scope over the tensed predicate and negative markers that do not have scope over the tensed predicate and hence can be said to have low(er) negative scope. A similar distinction as the one found in Klima can be found in the work by Jespersen (1917). He referred to sentence negation as *nexal* negation and to all other types of negation as *special* negation. The term nexal refers to the fact that a negative form unites two different "ideas" (Jespersen 1917: 43), as in (5). In this sentence the "idea" *he* and the idea *coming* are "negatived" by the nexus *n't*.

(5)   He doesn't come.

Jespersen also points to the fact that the distinction between special and nexal negation is clear in principle but that there are instances which are ambiguous. He discusses the example in (6a), which displays nexal negation, but which receives a special negation reading due to the addition of the *only*-phrase in (6b).

(6)    a.    He doesn't smoke cigars.
       b.    He doesn't smoke cigars, only cigarettes.

This distinction between sentence and constituent negation or nexal and special negation can actually be traced back even further. Aristotle namely also distinguished between *predicate denial*, (7b), and *term negation*, (7a).

(7)    a.    It is a not-white log
       b.    It is not a white log. (from Prior Analytics, Aristotle, cited in Horn (1989: 17))

But how do these differences relate to the other well-known dichotomy, i.e. the dichotomy between internal and external negation?

The distinction between internal and external negation goes back to the Stoics, who were the first to develop a propositional logic (Horn 1989: 2). Only negation that was literally outside of or *external* to the clause was considered *propositional negation*, (8a), whereas negation as in (8b) was considered to be internal to the proposition.

(8)    a. not: it is day and light
       b. It is day and it is not light. (Horn 1989: 22)

It was the Stoic school that influenced Fregean propositional logic and that has had had an enormous influence on the development of formal semantics and also on the treatment of sentence negation as a propositional negator since then.

What is clear is that the external negation in (8a) differs from Aristotle's predicate denial or Klima's sentence negation, which are both more like the internal negation in (8b). Actually, Horn (1989: 446) argues - relying on typological work by Dahl (1979) - that there is no empirical evidence for an external negator (like the one in (8a)) in natural language, i.e. the idea of an external negator is a construct by the advocates of propositional logic. Horn therefore argues for a return to Aristotle's predicate and term logic. However, in recent work Bar-Asher Siegal (2015a, b) argued for the existence of an external negator in Jewish Babylonian Aramaic (JBA), i.e. the negator *lāw*. If the identification of this negator as an external negator is correct, then this runs against the established idea that there is no such thing as an external negator in natural language. More discussion of this negator is taken up in section 4.

Within the frame of the Stoics, Aristotle's, Jespersen's and Klima's distinction between the two scopal types of negative markers can only be understood as two different types of internal negations. Notwithstanding the terminological disagreement, we end up with more types of negation than either dichotomty mentions, i.e. an external negator and at least three types of internal negation: Klima's sentence negation, Klima's constituent negation and the privative or affixal negation that this latter group also includes, which is treated as an independent type of negation by Aristotle and the Stoics. Other terms for affixal negation are 'morphological negation' (Horn 1989: 187, Hamawand 2009) or 'lexical negation' (Dahl 2010). Table 1 summarizes the terminological distinctions discussed up until now with examples from English in the top row. The slot for external negation is left blank, though it may very well be that this could be filled by JBA *lāw* for instance (cf. section 4).

*Table 1*

| | | n't/not | not | non- | un-/iN-/ dis-, a- |
|---|---|---|---|---|---|
| | external negation | internal negation | | | |
| *Klima* | | sentence negation | | constituent negation | |
| *Frege* | propositional negation | | | | |
| *Aristotle* | | predicate denial | | predicate term negation | |
| *Horn/Dahl* | | | | morphological/lexical negation | |
| *Jespersen* | | nexal negation | | special negation | |

Summarizing our discussion up until now, different terminology has been used to refer to wide and narrow scope negators. Two dominant dichotomies have governed the discussions on negation for decades: sentence negation vs. constituent negation and external negation vs. internal negation. Our introduction showed that there is on the one hand overlap between these terms, and on the other hand there are problems related to these terms, i.e. one term (external negation) has been questioned for its empirical significance, and the other terms have been used to refer to various different types of negation.

In the next section we will consider in more detail some of the tests which led to the two dominant dichotomies, hence also further clarifying the meaning of these different terms. We will discuss some caveats and problems with the tests, pointing to the most problematic issue, i.e. that none of the tests is capable of distinguishing different types of constituent negation or low scope negation. This problem is actually already apparent in the terminological overview in table 1: the two main dichotomies do not deal with subdivisions within the group of low scope markers, i.e. with the differences between the English low scope *not, non-* and *un-* for instance. In

section 3 we will take a closer look at De Clercq (2013, 2017b) and the findings of De Clercq (2018b), which systematically studied the morphology of negation and the *stacking* properties of negative markers to distinguish the different types of negative markers a language has at its disposal, including differences between low scope negative markers. Before we proceed, I want to point out that the focus of this chapter will be on negative particles modifying a predicate, predicate term or proposition, to a lesser extent on negative quantifiers or scalar quantifiers, and not on Negative Polarity Items (NPIs).

## 2   Tests for negation: a critical review

As we discussed in the introduction, the dichotomy between sentence and constituent negation is closely associated with Klima's work. Naturally, the Klima tests were challenged and critically reviewed by many researchers, and other tests for sentence negation were proposed. In what follows we will review some of these tests and critical discussions. Our investigation will lead to the conclusion that the dichotomy made by Klima on the basis of his tests is a valid and useful dichotomy. However, we will argue that some caveats need to be kept in mind when applying the tests. In the course of the discussion, it will become clear that some criticism on the tests is actually related to terminological confusion having to do with the other dichotomy we started out with, i.e. external vs. internal negation, and with the original aim of Klima's tests.

One of the first syntacticians to challenge the Klima-tests was Jackendoff (1969: 218). He argues that real sentence negation can be defined as in (9):

(9)     A sentence [$_S$ X-neg-Y] is an instance of sentence negation if there exists a paraphrase *It is not so that* [$_S$ X-Y].

According to Jackendoff, not all sentences which pass the Klima-tests for sentence negation give rise to what he defines as sentence negation in (9). A problematic pair is in (10).

(10)    a.   Many of the arrows didn't hit the target.
        b.   Not many of the arrows hit the target.
        (Jackendoff 1972: 326)

The data in (11) illustrate that the sentences in (10) both pass the Klima *neither*-tests for sentence negation (cf. De Haan (1997: 31-34) for more discussion).

(11)    a.   Many of the arrows didn't hit the target, and neither did many

of the javelins.[2]
    b.    Not many of the arrows hit the target, and neither did many
          of the titanium-alloy bullets. (Jackendoff 1972: 363)

However, (10b) can be paraphrased with the 'Jackendoff test' (see de Haan 1997 for that label), i.e. with *It is not so that X-Y*, whilst this is not the case for the sentence with the regular negation of the auxiliary in (10a). Due to the fact that the quantified subject is not negated in (10a) , Jackendoff argues that *Aux*-negation does not give rise to real sentence negation but only to the negation of the VP. He adduces the test in (12) in support of that claim.

    (12)    a.    # Not many of the arrows hit the target, but many of them
                   did hit it.
            b.    Many of the arrows didn't hit the target, but many of them
                   did hit it.

In other words, the scope of negation is not the full sentence in (10a), whilst it is in (10b). For Jackendoff it thus seems that only a sentence in which negation takes scope over the subject is real sentence negation. *Aux*-negation is under his proposal not necessarily real sentence negation. He refers to it as VP-negation, (10a), and considers it some sort of constituent negation.

        De Haan (1997) refers to the Klima-tests as *syntactic* tests for sentence negation, whilst he refers to Jackendoff's test as a *semantic* test for sentence negation. De Haan points out that "The Jackendoff test is [. . .] sensitive to the relative scope of negation and quantifiers", but that it is not a test for sentence negation. If we were to follow Jackendoff's proposal for what sentence negation is, i.e. a negative sentence that can be paraphrased by *It is not the case that*, then the pair in (13a)-(13b) could both be considered instances of sentence negation, because both (13a) and (13b) can be paraphrased as (13c). However, it is quite obvious that the *un-* in *unhappy* does not have the same scope according to the Klima-tests.

    (13)    a.    He is not happy.
            b.    He is unhappy.
            c.    It is not so that he is happy.

De Haan (1997: 33) concludes that the Klima-tests and the Jackendoff-test do different things: the difference is a difference between semantic and syntactic testing of sentence negation. I agree with this observation, and hence point to the fact that the term sentence negation is an umbrella term for different types of negation. The Jackendoff-test is indeed capable of detecting

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[2] Jackendoff (1972) presents (11a) with two question marks, but De Haan (1997: 32, fn9) argues that several of his informants considered the *neither*-tag acceptable.

which instances of *Aux*-negation cannot give rise to external negation, i.e. to widest scope over the subject. However, the test massively overgeneralizes if applied to all instances of negation, as illustrated by the examples in (13). The Klima tests yield a positive result for sentence negation if a specific negative marker is involved (*n't* or *not* in English), which takes scope in a sufficiently high position. However, it seems that several syntactic positions are involved in what is referred to as sentence negation. Whilst sentence negation usually gives rise to external negation, it can fail to do so in the presence of another operator, as was the case in (10a), strongly suggesting that the operator *many* intervenes between two positions for sentence negation. We get back to this below.

De Haan (1997: 28) concludes furthermore that all Klima-tests are reliable tests for sentence negation, which even seem to have crosslinguistic validity. Kraak (1966) and Seuren (1967) studied the tests for Dutch, Stickel (1970) for German, Attal (1971) for French, and Ibañez (1972) for Spanish. De Haan himself also looks at a couple of non-Indo-European languages (Yoruba, Yavapi, etc) to provide support for the cross-linguistic validity of the Klima tests for sentence negation. Only the question tag-test, he argues, is an English-specific test, for which the cross-linguistic validity has not yet been established. McCawley (1998: 611) pointed to the question tag-test as a potentially problematic test due to the fact that there are two types of tags: question tags and reduplicative tags. Reduplicative tags reduplicate the polarity of the clause they are appended to. Positive reduplicative tags combine with positive sentences, (14a). Negative reduplicative tags are said to be non-existent, (14b).

(14) a. John bought the book, did/*didn't he? (Aff-S)

   b. John didn't buy the book, *did/*didn't he?

Without any context, a positive tag could thus also be the sign of a positive sentence, leading to confusion according to McCawley (1998: 611). However, apart from a distinction by means of intonations patterns (Ladd 1980, Quirk et al. 1985), question tags and reduplicative tags can be kept apart thanks to the *Oh so*-test (Quirk et al. 1985: 810-813, De Clercq 2013). Sentences with reduplicative tags can be preceded by *Oh so*, as such the speaker's suspicion is signaled, whilst this is not possible for question tags, which merely check for information. Moreover, since negative tags cannot be reduplicative tags De Clercq (2011) points out that they can safely be considered question tags, pointing to the positive nature of the main clause. Only with positive tags, some semantic testing should be done to assure oneself of the type of tag that is being used, i.e. a reduplicative or question tag. Picking up on McCawley's (1998) worry, Brasoveanu et al. (2014) also argue for the validity of the question tag-test on the basis of an experiment. In addition, their experiment also said something about the nature of negative subjects, which we have already

briefly introduced in relation to (10b). Finally, their experiment also sheds light on the interaction of the question tag-test with scalar quantifiers, an issue that we will come back to below. With respect to their first point, i.e. the validity of the question tag-test, we can say that the results of the experiment suggested that provided the right context is given to informants, question tags can be triggered instead of reduplicative tags. The context created to trigger question tags was a context that matches well with the idea of information checking. Each test sentence was preceded by a scene setting sentence followed by "Aha I was right!", illustrated for a positive and a negative sentence in (15) and (16) respectively (Brasoveanu et al 2014:177).

(15)    Mary has just told Jane something about government representatives. Jane knows it already and says: ''Aha, I was right! The government representative visited the colonies this year, did he/didn't he?"

(16)    Geoff has just told Ryan something about composers. Ryan knows it already and says: ''Aha, I was right! The composer did not use the cello in his late period, did he/didn't he?''

In the experiment the negativity of items like no, never, few and rarely was checked. As controls affirmative sentences and sentences with not were used. The results indicated that the question tag test worked well: the items which triggered the highest number of positive tags (i.e. indication of negativity) were *never, not* and *no*, followed by *few* and *rarely*. With respect to the second point addressed in Brasoveanu et al. (2014), i.e. the nature of negative subjects, the paper also confirms that negative subjects tend to trigger sentence negation more often than negative objects. This fact has been referred to as the subject-object asymmetry in the literature (Beghelli 1995, De Clercq 2011, De Clercq et al. 2012). Sentences with negative subjects (*no X*) predominantly give rise to positive question tags, whilst sentences with negative objects do so much less. Summarizing, the reservations uttered with respect to the question tag test can be discarded thanks to this experiment. In addition, the experiment confirms that negative subjects are "more" negative than negative objects, a result that matches well with the idea introduced in relation to (10b) that negative subjects give rise to external negation.

In Penka's (2011) discussion of the Klima tests she considers it a problem that Klima's tests are not only applicable to negative indefinites and *not*, but that they also single out *few, seldom, rarely etc* as yielding sentence negation. The latter elements are only 'downward entailing' (Ladusaw 1979; henceforth DE), i.e. support inferences from set to subset, and are not negative according to Penka (2011: 5), i.e. not 'antiveridical' (Giannakidou 1998), 'antimorphic' or 'antiadditive' (van der Wouden 1994: 36). Penka's idea squares with Beghelli's (1995) in this respect, who refers to the latter

group of elements as non-negative downward entailing elements. As such, Penka does not consider the Klima-tests a foolproof test for real sentence negation. However, even though I agree that this fact adds a (semantic) caveat to the tests, it does not invalidate Klima's original aim and claim: the tests' effectiveness in distinguishing between the constituent scope or sentential scope of an abstract [neg]. On the contrary, Brasoveanu et al. (2014), whose experiment we introduced above, also showed that the semantic hierarchy of negativity observed in the literature on negation and NPI-licensing is maintained after application of Klima's question tag test, i.e. downward entailing operators like *few* and *rarely* do not yield positive question tags (i.e. Neg-S) as often as for instance *no, never* or *not*. However, the fact that they are sometimes compatible with positive question tags could show that an abstract element [neg] must be present underlyingly, which was exactly what Klima's tests were designed to identify. Support for this idea comes from De Clercq (2011), who shows how DE expressions like for instance squatitive negation cannot trigger positive question tags and hence cannot give rise to sentence negation in Klima's terms, (17).

(17)   a.   Janet read squat, *did she/didn't she? (Aff-S)

       b.   Janet read fuck-all books, *did she/didn't she? (Aff-S) (De Clercq 2011: 15)

These squatitive negative elements are also not capable of licensing NPIs, a fact observed by Postal (2004: 166). It thus seems that there are downward entailing expressions that do not contain an abstract [neg], and that can only give rise to semantic (sentential) negation (cf. Zeijlstra 2004), such as squatitive elements. However, *few* and *rarely,* etc. contain [neg] and are scalar. More support for this comes from typological work on *few*, which shows that in quite some languages *few* can only be expressed by means of an overt negation and another element, hence indirectly providing support for a decomposition of *few* into [neg] and an another element (De Clercq 2017a).

Another argument in support of the Klima tests comes from interactions with negatively prefixed expressions. Even though these expressions are downward entailing and can therefore license NPIs, (18), the Klima-tests correctly classify them as Aff-S, (19).

(18)   a.   He is unable to find any time for that.
       b.   It is inconceivable that he could do any more.
       c.   It is impossible/unlikely that he will do any more.
       d.   He would be unwise to do any more. (Klima 1964: 291-292)

(19)   a.   He is unable to find any time for that, isn't he?
       b.   He would be unwise to do any more, wouldn't he?

Data like these show that the Klima-tests are capable of capturing scope distinctions between markers endowed with [neg], but that they are not a test for NPI-licensing as such.

Another issue with the Klima-tests was identified by Payne (1985: 200) and further discussed by Penka (2011: 5). Payne adduced data in which an adverbial quantifier intervenes between the subject and the negated auxiliary, (20b) yielding an affirmative sentence instead of a negative sentence, (20a).

(20)  a.    John doesn't often pay taxes, does he/*doesn't he?

      b.    John often doesn't pay taxes, *does he/doesn't he?

On the basis of this Penka argues that it is the widest scope bearing element which the question tags are sensitive to, and not so much the negation itself. De Clercq (2013) follows this line of thought, claiming that it is 'sentential polarity' that the tags (and other Klima-tests) are sensitive to, and not so much sentential negation. De Clercq (2013) provides a syntactic account, in which she argues that the regular position for sentential negation is a position at the level of the tensed predicate, i.e. at TP in syntactic terms (see also section 3), whilst sentential polarity resides in a left peripheral position in the clause (possibly a focus position, see section 4), from where it determines the polarity of the clause (De Clercq 2011, De Clercq et al. 2012). The idea is that this position needs to be checked or filled, covertly or overtly, to type the polarity of the clause. If negation outscopes the tensed verb and in the absence of another scope bearing element, the Klima-tests in general and the question tags in particular, will yield a sententially negative sentence, i.e. a sentence with sentential negative polarity. The interpretation of this negation will be an external negation. However, if a scope bearing positive element is present in between the position dedicated to sentential polarity and the position for sentential negation at the tensed predicate, this element will intervene between the overt negation and the sentential polarity position, so that the polarity of the clause will be affirmative. An external negation reading will not be possible then. The idea that sentential negative polarity resides somewhere (high up) in the left periphery is also present in the work of Moscati (2006, 2010) and McCloskey (2011), who take the perspective that negative clause typing happens at the level of the complementizer, i.e. at CP, for which languages with negative complementizers provide extra support.

Penka's (2011) definition of sentence negation actually incorporates the idea that there are different levels of being sententially negative. This idea is present in the use of the word *at least* in her definition of sentence negation in (21).

(21)    Negation taking scope at least above (the existential quantifier binding the event argument of) the main predicate.

Her approach is in line with work by Davidson (1966) and Acquaviva (1997), who argue that sentential negation arises when negation takes scope above the event expressed by the verb. For a sentence as in (22a) the negation outscopes the existential quantifier, which binds the event of the main predicate, cf. (22b) (Penka 2011: 7).

(22)    a.    John didn't kiss Mary.
           b.    $\neg \exists$ e [agent(John, e) & theme(Mary, e) & kiss(e)]

Even when there is a quantifier intervening between negation and the existential quantifier, sentential negation can still arise, in spite of the fact that there will not be an immediate scopal relation between negation and the existential quantifier, as illustrated for (23a) in (23b).

(23)    a.    Not every boy kissed Mary.
           b.    $\neg \forall$ x [boy (x) $\rightarrow$ $\exists$e [agent(x,e) & theme(Mary,e) & kiss (e) ]]

(23) is reminiscent of the example in (10b), and hence also illustrates an external negation reading.

    However, given the definition provided in (21), also sentences as in (24) should be considered instances of sentence negation. Also in (24) the scope of the negation is higher than the existential quantifier that binds the event expressed by the main predicated. However, the scope of the negation in (24) is not external nor does it affect the tensed auxiliary.

(24)    She has not run to the shop, but walked  there.

Penka addresses this issue briefly but decides to remain agnostic with respect to the question whether sentence negation takes scope over tense or below tense.

    The idea that sentence negation is a concept referring to multiple types of negation and that it arises whenever negation takes scope in one of the many positions above VP is also present in the syntactic work by Zanuttini (1997). Zanuttini argues on the basis of dialectal research in Italian that there are at least four syntactic different positions within the clause where sentence negation can appear. Poletto (2008, 2017) follows up on this and argues that these different positions are associated with etymologically different types of negative markers. However, it is unclear how these different positions relate to the two dichotomies under discussion in this paper.

    In our survey of the discussions related to the two dichotomies we started out with, sentence negation is most discussed. The upshot of the entire discussion is that sentence negation is an umbrella term, which can refer both to external negation and to wide scope internal negation, and which most

probably can be associated with different syntactic positions. However, the nature of constituent negation has remained relatively undiscussed up until now. The only thing we know on the basis of the tests is that constituent negation is what is not sentence negation. However, we saw that – at least for Klima – both sentences with low scope *not* and *un-* can be classified under the label of constituent negation. Penka defines non-sentence negation as an event that does not outscope the existential quantifier that binds the event expressed by the main predicate *marry*, as in (25), where the negation *not* outscopes only the predicate *unattractive* and not the event in *married*.

(25)    He married a not unattractive girl.

On the basis of the Klima-tests it is not clear how to distinguish between affixal negation like *un-* and low scope negation with *not* as in (24) or (25). It seems that all different low scope negators are treated as one big bunch, with any differences between them irrelevant to syntax and - from a formal semantic point of view - irrelevant to semantics. In the next section we will provide support from morphology pointing to the significance of the differences between all these different negative markers to understand the bigger picture of what it means to be negative.

## 3   What morphology tells about  scope

In his analysis of constituent negation, Klima (1964: 309) says that "while the negative elements in sentence negation and constituent negation are the same, the relationships between the negative elements and the sentence in constituent negation, on the one hand, and sentence negation on the other, are grammatically independent of one another." For Klima this means that the [neg] in constituent negations like (25) is the same [neg] as in sentence negation, i.e. a preverbal [neg], but then one in an embedded relative clause. Even though this may be the right analysis for some instances of negative modification, this is not a viable analysis for for instance *un*-prefixed adjectives like *unhappy*. In what follows we will have a closer look at the morphology of negative markers in order to come up with a more fine-grained classification than the dichotomies that we started out with.

De Clercq's (2013, 2017b, 2018b) approach to negative markers does not focus only on sentence negation, but also on those negative markers that resort under the label constituent negation. The key idea is that there is a difference between negation and a negative marker. If negation is syntactically expressed by means of the abstract feature [neg], it is always packaged with other features in natural language negation. Differences

between negative markers arise due to the other features [neg] is packaged with. These features determine the scope, semantics, function, and distributional properties of [neg]. One of the crucial tools in De Clercq's work is the stacking test. This test has been occasionally used in the literature to check whether negative markers are in complementary distribution, as for instance in Chung (2007) for Korean. Whilst Horn's (1989) work went a long way to showing that the stacking of different negations always has semantic and pragmatic import, thus criticizing the Stoic idea that negations can be iteratively stacked, cancelling each other out without any semantic import, De Clercq's work shows that stacking is not free in the first place, and that there are clear morpho-syntactic constraints related to which negative markers can be stacked.

De Clercq (2013) checks negative markers in copular clauses with adjectival predicates in 9 languages of diverse origin for their capacity to be stacked upon another negative marker within the same clause. In order to illustrate what is meant with stacking, take for instance the prefix *un-*. This prefix can occasionally be preceded by *non-*, but never the other way around, (26).

(26)  a.  Nonunhappy people are the best.  (p.c.  Jim McCloskey).
       b.  *Unnonhappy people are the best.

In the same way, *not* can stack on *un-* and *non-*, but not the other way around, as in (27), and *n't* can stack on *not*, but not the other way around, as in (28).

(27)  a.  Kim is NOT unhappy.
       b.  Kim is NOT nonprofessional.
       c.  He isn't not happy.

(28)  a. *Kim is un-not happy.

       b. *Kim is non-not professional.
       c. *He is notn't happy.

If a negative marker does not tolerate any other markers above it, we can assume that that marker has widest scope, and the marker upon which all other markers can be stacked has lowest scope. As such, the stackability test turns out to be a test into the scopal properties of negative markers, assuming that negation most usually takes scope in its surface position.

Interestingly, if we look at the functions of these scopally different negative markers, we can see that different functions can be attributed to them. *n't* is used for denial (see also Horn 1989: chapter 1), whilst low scope *not* is used for modifying, (29a) or contrasting, (29b), the affixal negator *non-* is used as a classifying negator, (29c)-(29d) (Kjellmer 2005), and *un-, iN-, dis-* are used as characterizing negators, (29e) (Kjellmer 2005).

(29)  a.  a not very happy man, not long ago.
      b.  John was not happy, but sad.
      c.  Nicola believes herself to be a non-angry person and, indeed, she never loses her temper. (Corpus:ukbooks/08.) (Kjellmer 2005: 162-163)
      d.  Use non-fat milk instead of whole milk. (Corpus npr/07.) (Kjellmer 2005: 162-163)
      e.  Lainey had a terrible voice, unmusical and sharp, and she usually pitched herself an octave below the sopranos to sub-merge it. (Corpus: usbooks/09.) (Kjellmer 2005: 162-163)

De Clercq (2013, 2017, 2018b) ends up distinguishing four different types of markers in copular clauses with adjectival predicates. The labels she attributes to the four different types of markers correspond to four positions distinguished in clausal syntax. Characterizing markers like *un-, dis-, iN-* take scope in a dedicated position for negation above a gradable predicate, referred to as QP, a position in the extended projection line of AP (Corver 1997). Classifying markers like *non-* take scope in a position above a classifying predicate, referred to as ClassP, a position usually associated with the extended projection line of nominals (Borer 2005). Contrasting and modifying markers like low scope *not* take scope in a position above Focus, referred to as FocP, a position associated with the periphery of vP (Belletti 2001, 2004) or the left periphery of the clause (Rizzi 1997). Regular verbal negators like *not* or *n't* take scope in a position for negation associated with tense, i.e. TP (Pollock 1989). The results of this classification are summarized in table 2.

*Table 2*

| | $T^{neg}$-markers | $Foc^{neg}$-marker | $Class^{neg}$-markers | $Q^{neg}$-markers |
|---|---|---|---|---|
| scope over stack | tensed predicate on Foc, Class, Q | untensed predicate on Class, Q | predicate term on Q | predicate term - |
| semantic function | contradiction denying | contradiction contrasting/modifying | contradiction classifying | contrariety characterizing |
| | *n't/not* | *not* | *non-* | *un-/iN-/ dis-, a-* |

The negative markers in table 2 are ordered from left to right according to their scopal properties, i.e. from wide to narrow scope. Crucial for De Clercq's work is that after a closer study of these negative markers in 9 different languages, this order based on the scopal properties of markers was confirmed by the morphology, and in particular the syncretisms between these different types of negative markers. It turns out that there is no language in which a $T^{neg}$-marker is syncretic with a $Q^{neg}$-marker, unless the $Foc^{neg}$-marker and $Class^{neg}$-markers are also syncretic. The Czech data in (30) illustrate this situation of full syncretism (De Clercq 2013: 65-66): (30a)

illustrates that *ne* can be used as a $T^{neg}$-marker, (30b) shows it used as a $Foc^{neg}$-marker and $Q^{neg}$-marker, (30c) illustrates what could be a $Class^{neg}$-marker and (30d) exemplifies the use of *ne* as a $Q^{neg}$-marker.

(30)    a.    Ja ne- jsem st'astný.
                 I   neg- am   happy.
                 'I am not happy.'
        b.    On je ne ne- št'astný, on je št'astný.
                 he  is neg neg- happy,   he is happy.
                 He is not unhappy, but happy.'
        c.    Jeho metoda je ne- komerční.
                 his    method is neg- commercial
                 'His method is noncommercial.'
        d.    Ja jsem ne- st'astný.
                 I   am   neg- happy.
                 'I am unhappy.'

Greek (table 3) illustrates how all types of negative markers can also get a different lexicalization, i.e. Greek is fully non-syncretic. Whilst De Clercq (2013) researched only 9 different languages with respect to the morphology of negative markers, De Clercq (2018a) extends the typological sample to 21 languages, which yields 7 different patterns, illustrated in table 3.

*Table 3*

| | $T^{neg}$ | $Foc^{neg}$ | $Class^{neg}$ | $Q^{neg}$ |
|---|---|---|---|---|
| Greek | dhen | oxi | mi | a- |
| French (formal) | ne …pas | pas | non | iN- |
| Korean | (-ci) an(i) (ha-) | an(i) | pi- | pul- |
| | (-ci) mos (ha-) | mos | mol- | mol- |
| English | not | not | non | un- |
| French (informal) | pas | pas | non | iN- |
| Swedish | inte | inte | icke- | o- |
| Turkish | degil | degil | gayri/olmayan | -siz |
| Japanese | nai | nai | hi- | hu(/bu)/mu |
| Khwe | vé | ŋya | ó- | ó |
| Chinese | bù | bù | fēi | fēi |
| MS Arabic | laa | laa | ghayr- | ghayr- |
| Persian | na | na | qheyr- | qheyr- |
| Mayalayam | alla | alla | a- | a- |
| Moroccan Arabic | ma (ši) | muši | muši | muši |
| Hungarian | nem | nem | nem | -tElEn |
| Hebrew | lo | lo | lo | bilti- |
| Dutch | niet | niet | niet- | on- |
| Russian | ne | ne | ne | ne- |
| Czech | ne- | ne | ne- | ne- |
| Malagasy | tsy | tsy | tsy | tsy |
| Hixkaryana | -hi- | -hi- | -hi- | -hi- |
| Tümpisa Shoshone | ke(e) | ke(e) | ke(e) | ke(e) |

Table 3 illustrates the syncretism patterns, as shown by the shading. It also reveals that there are no ABA-patterns, thus respecting the well-known

descriptive *ABA-generalisation. The *ABA-generalisation is a restriction on patterns in a paradigm, which says that it is possible to order paradigms in such a way that only contiguous cells in a paradigm are syncretic (Baunaz & Lander 2018, Caha & Vanden Wyngaerd 2017). The ordering of the paradigm in table 3 confirms the scope of negation, i.e. the order from wide to narrow scope in table 2, thus strongly suggesting that morphology is not arbitrary. Concretely, of the 15 logically possible patterns shown in table 4, those shown in gray are ABA patterns, i.e. patterns showing a syncretism in noncontiguous cells across a nonsyncretic form, and they are not attested.[3] All those that are attested (cf. table 3) are not ABA patterns.[4]

*Table 4*

| 1 | A | A | A | A |
|---|---|---|---|---|
| 2 | A | A | A | B |
| 3 | A | A | B | A |
| 4 | A | A | B | B |
| 5 | A | A | B | C |
| 6 | A | B | B | A |
| 7 | A | B | B | B |
| 8 | A | B | B | C |
| 9 | A | B | A | A |
| 10 | A | B | A | B |
| 11 | A | B | A | C |
| 12 | A | B | C | A |
| 13 | A | B | C | B |
| 14 | A | B | C | C |
| 15 | A | B | C | D |

Based on the patterns in table 3, and in particular the languages in the bottom row, it is clear that all negative markers share something, a meaning that we call negation. However, what the patterns also show is that these markers are also somehow different. This is very well illustrated by Greek, where a different negator is associated with all four types of markers. As such, the system that we need to set up should ideally capture both the similarity and the differences.

In order to capture the similarity and differences between negative markers, negation can be decomposed into its subcomponents (Caha 2009, Starke 2009). The internal syntax of negative markers needs to consist of at least one identical feature. The obvious candidate here is [neg]. The distributional and scopal differences are then taken as meaningful reflections

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[3] The table in 4 is based on Michal Starke's summary of the patterns in my work. He was so kind as to share this with me. All mistakes are of course mine.

[4] De Clercq (2018a) argues that there is at first sight a missing pattern, i.e. pattern 8 in table 4 (table 3 shows 7 attested patterns and there 8 logically possible patterns). This can be due to the limited set of languages studies. However, upon closer examination, the missing pattern 8 can be found in a variety of French. It is beyond the scope of this paper to go deeper into this.

of featural differences amongst negative markers, which should be part of their internal syntax. Negative markers like *un-*, (31c), which take scope above a gradable predicate, i.e. QP, consist in addition to a [neg] feature also of a [Q] feature. Negative markers like *non*, (31b), which take scope above a classifying predicate, i.e. ClassP, add a [Class] feature, and $T^{neg}$ markers add a T-feature. The internal structure of the different negative markers in English is shown in (31). The difference in internal structure will determine where the different markers can appear.[5]

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

  The take-away message from this discussion is that the basic dichotomy between sentence negation and constituent negation is too coarse to do justice to the realm of negative markers the languages of the world have at their disposal. On the basis of a cross-linguistic investigation of syncretism patterns, it can be argued that at least four different types of negative markers can be distinguished, three of which are candidates to resort under the label constituent negation, i.e. $Foc^{neg}$-markers, $Class^{neg}$-markers and $Q^{neg}$-markers.

## 4 Towards a synthesis

A question that emerges on the basis of the discussion in section 3 is how the negative markers in De Clercq's classification relate to the dichotomies we started out with. The $T^{neg}$-markers in De Clercq's system are those that normally give rise to sentence negation according to the Klima tests, unless other operators co-occur with them. They are the regular verbal negators a language has at its disposal (the standard negators in Payne (1985) and Miestamo's (2003) terminology) and this group is internally complex, consisting of various different morphological types (particles, negative verbs, affixes, cf. Dryer 2011). However, it is precisely due to the fact that other operators can occur in a structurally higher position and then change the polarity of the clause, (20b), that it seems necessary to distinguish another position and another type of negative marker, responsible for sentential polarity, which is structurally higher than the one for regular verbal negation.

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[5] De Clercq's system is couched in Nanosyntax. Phrasal spellout, the Superset Principle and the Elsewhere Principle govern lexical insertion in Nanosyntax and allow us to capture the *ABA-pattern. It is beyond the scope of this paper to discuss spellout in detail and how the different markers project in clausal syntax. I refer the reader to Starke (2009, 2011), Caha (2009), Caha et al. (2017) for more discussion of the nanosyntactic programme and to De Clercq (2018b) for a concise overview of the nanosyntax of negation.

The assumption is that it is this higher position that the Klima tests, like the question tag test, are sensitive to. If there is no other operator available, the $T^{neg}$-marker can determine the polarity of this high position (via Agree or covert movement at LF). However, if there is another operator in between the $T^{neg}$-marker and this high position, the polarity of the clause will be determined by the polarity of this higher operator. Our discussion of this high position brings us back to the discussion of external negation, and more in particular to the external negator *lāw* identified in Jewish Babylonean Arameic (JBA) by Bar-Asher Siegal (2015a,b). Even though it is indeed generally assumed that the notion of external negation is one that belongs to the realm of logic or formal semantics rather than to the realm of natural language (cf. Horn 1989: 21), it seems that there is empirical evidence in the form of a negative marker after all. Bar-Asher Siegal & De Clercq (2018) extend the idea developed on the basis of JBA to the negator *neca* in Sicilian (Garzonio and Poletto 2015), arguing that the external negators in JBA and Sicilian are linked to a position in the left periphery of the clause, i.e. to a left peripheral Focus Position, FocP, thus linking external negation to the position that was also identified as a position for sentential polarity. Even though it seems that there are not many languages with a dedicated marker for external negation, all languages have strategies to express external negation, i.e. by means of negative clefts, negative preposed constituents, negative quantifier subjects, negative polarity particles or real external negators. As such, it is not surprising that this position, FocP, has been argued to host focal constituents and wh-words in Italian (Rizzi 1997), negative preposed constituents (Haegeman 2000) and polarity particles like *yes/no* (Holmberg 2015). It is a position dedicated to negative and interrogative clause typing and hence can be associated with sentential polarity and external negation. It should not be a surprise that quite some languages use the $Foc^{neg}$-marker also as a polarity particle, meaning 'no', suggesting interaction between the low scope position for $Foc^{neg}$-markers and the left peripheral FocP.

Summarizing, sentence negation is an umbrella term referring to different types of wide scope negation that are interpreted externally or internally. In the latter case the negative marker does not succeed in making the polarity of the clause negative due to the presence of another operator, as discussed for the example in (20b). Both external negation and wide scope internal negation coincide with the Aristotelian concept *predicate denial*. With respect to constituent negation we can say that all constituent negation is internal negation, but then with different scopes. De Clercq's $Foc^{neg}$-marker, is the constituent negator with widest scope. It can best be classified under the Aristotelian concept of predicate term negation, just like $Class^{neg}$- and $Q^{neg}$-markers coincide with the Aristotelian umbrella term predicate term negation. The table in 5 is an update of table 1: it shows how the terminology discussed

in this paper relates to each other and it aims at providing an overview of and insight into the terminological minefield surrounding negation.

*Table 5*

| | JBA *law*/Sicilian *neca* Preposed PP/DP negative clefts ¬ | *n't/not* | *not* | *non-* | *un-/iN-/ dis-, a-* |
|---|---|---|---|---|---|
| | external negation | internal negation | | | |
| *Klima* | | sentence negation | constituent negation | | |
| *Frege* | propositional negation | | | | |
| *Aristotle/Horn* | | predicate denial | predicate term negation | | |
| *Zimmer/Dahl* | | | | affixal/lexical negation | |
| *Payne/Miestamo* | | standard negation | | | |
| *Jespersen* | | nexal negation | special negation | | |
| | sentential negative polarity | | | | |
| *syntactic classification* | (FocP) | T$^{neg}$-markers | Foc$^{neg}$-markers | Class$^{neg}$-markers | Q$^{neg}$-markers |

## 5 Conclusion

What we established in this paper is that there is a difference between two dichotomies: (i) external negation vs internal negation, and (ii) sentence negation vs. constituent negation. We discussed the Klima-tests, how it relates to the dichotomy sentence-constituent negation and we reviewed some of the criticism the tests received in the literature. We argued that the term sentence negation is an umbrella term, referring at least to external negation and wide scope internal negation. We established that the same is true for constituent negation, i.e. it is too broad a term to do justice to the different types of negation the label covers. In line with this idea, we discussed the relevance of syncretisms between various types of negative markers, which led to a four-way classification of markers, ordered according to their scopal type. Finally, we discussed how external negation is a term confined to that type of negation which takes scope over the entire proposition, including the subject, and we mentioned that it has been argued that there is no specific morphological instantiation of an external negator, a claim which has recently been problematized.

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