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**RESEARCH**

# *Not Known: Anonymous, Unknown or Non-known?* A pilot test on the interpretation of negated absolute adjectives in Romanian

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Absolute adjectives (*open/closed*), in contrast with relative adjectives (*tall/short*), are said to behave symmetrically, the negation of one form entailing the assertion of the other. However, Paradis and Willners (2006) show that absolute adjectives behave rather asymmetrically when negated. This paper investigates the profiles of absolute adjectives in relation to negation in Romanian. Based on the assumption that the weaker sentential negation *nu A* 'not A' may be used as a substitute for a stronger option, a judgement test was designed, in which the interpretation of *nu A* 'not A' (*not healthy*) is tested against the affixal negation *neA* 'unA' (*unhealthy*) and *non-A* (*non-healthy*) and the lexical antonym *B* (*ill*). This may prove useful as the negative affixes and polar antonyms have different encodings, pointing to different places on the scale. While *nu* 'not' usually denotes the entire negative part of the scale, the antonym *B* denotes the absolute end of the scale and *ne-* 'un-' usually gives rise to scalar negative compounds, denoting an intermediate position on the scale. The results confirm the asymmetric behaviour, the profiles of the adjectives showing different degrees of scalarity, displayed on a continuum ranging from having no scaling potential to having a strong or weak relative-like interpretation. Accordingly, three main categories of adjectives have emerged: absolute, relative-like and adjectives that can be either absolute or relative. In sum, the results show variation among the absolute adjectives as a class but also inside the mentioned subclasses. Furthermore, the adjectives do not seem to cluster in pairs but rather independently. Although only a few negative compounds are lexicalized, the participants have supplied the non-lexicalised compounds in order to fill in the gap between *nu A* 'not A' and the polar opposite *B*.

**Keywords:** absolute adjectives; affixal negation; antonyms; scalarity

## 1 Introduction

It is claimed that absolute adjectives have truth-conditions that make reference to fixed (either maximal or minimal) standards of comparison (Kennedy and McNally 2005; Kennedy 2007). A consequence of this is that, in the case of a pair of antonyms, the negation of one entails the assertion of the other: *the door is not open* entails *the door is closed*. Although absolute adjectives are expected to behave similarly, it has been shown that the entailments do not always hold, four asymmetric patterns being identified in Swedish (Paradis and Willners 2006): (a) *dead = not alive*; *alive = not dead*, (b) *wrong = not right*; *right ≠ not wrong*, (c) *bound ≠ not free*; *free = not bound*, (d) *empty ≠ not full*; *full ≠ not empty*. The asymmetries are attributed to the scaling potential the absolute adjectives acquire contextually.

This paper aims at investigating the profiles of negated absolute adjectives in Romanian on the basis of experimental protocol. In order to see whether absolute adjectives have some scalar, relative-like features, a judgement test was designed in which the interpretation

of the absolute adjective used in relation to sentential negation *nu A* 'not A' (*Ea nu este sanatoasa* 'She is not healthy') was tested against the affixal negation *neA* 'unA' (*nesanatoasa* 'unhealthy'), the affixal negation *non-A* (*non-sanatoasa* 'non-healthy') and the polar opposite *B* (*bolnav* 'ill'). Contrasting the interpretation of the negated absolute adjective *nu A* 'not A' with its morphological and non-morphological equivalents may prove useful, as the negative affixes and polar antonyms have different encodings, pointing to different places on the scale and different types of semantic opposition. The polar opposite *B* denotes the absolute end of the scale (De Clercq 2013: 32–36) whereas the negative affix *ne-* 'un-' usually gives rise to contrary negation and scalar negative compounds, denoting an intermediate position on the scale. The polar opposite *B* and the affixal negation *non-A* preserve the entailment relations, giving rise to contradictory negation.

For the present study, the prerequisite was that the adjectives under investigation had the polar opposite *B* lexicalised, while this was not a necessary feature for the negative compound *neA* 'unA'. It should be noted that in the absence of the polar opposite *B*, the negative affix *ne-* 'un-' can have a contradictory meaning, leading to antonym pairs, such as *clar* – *neclar* 'clear – unclear', *potrivit* – *nepotrivit* 'fit – unfit', *sigur* – *nesigur* 'certain – uncertain'. Our hypothesis is that when the polar opposite *B* is lexicalised, the negative compound *neA* 'unA' is not strengthened to the meaning of the polar opposite. In other words, when both *sănătos* 'healthy' and *bolnav* 'ill' are lexically available, the negative compound *neA* 'unA' (*nesănătos* 'unhealthy') does not express the same meaning as the polar opposite *B* 'ill', i.e. it does not denote the absolute end of the scale, but an intermediate position between *nu sănătos* 'not healthy' and *bolnav* 'ill'. This hypothesis is supported by some preliminary testing in which the participants (N = 13) were asked to indicate the position *neA* 'unA' occupies on a scale from 1 to 10, where 1 was the positive form of the adjective and 10 was the lexicalised antonym. The adjectives tested were: *nevinovat* 'unguilty', *incorect* 'incorrect', *neatent* 'unattentive', *nesănătos* 'unhealthy', *neadevărat* 'untrue', *necunoscut* 'unknown', *nemort* 'undead', *negreşit* 'unwrong', *nedistrat* 'undistracted', *nebolnav* 'unill'. The results of the preliminary testing showed that, regardless whether the stem to which the affix attached was positive or negative, none of the *neA* 'unA' negative compounds were considered to express the same meaning as the polar antonym *B*. Instead, their position varied between 5 and 10 on the scale, depending on the adjective.

In the current judgement test, the participants were asked to indicate what the meaning of a negated absolute adjective *nu A* 'not A' (*Ea nu este sănătoasă* 'She is not healthy') was by choosing among the polar opposite *B* (*bolnav* 'ill'), the negative compound *neA* 'unA' (*nesănătos* 'unhealthy') or *non-A* (*non-healthy*). The prediction is that if the participants choose the *neA* 'unA' compound as the intended interpretation for *nu A* 'not A', regardless whether the negative compound is lexicalised or not, then the adjectives have no longer equivalent meanings, i.e. the bi-implication can no longer be applied. Instead the adjectives have to some extent scalar, relative-like features. The present study is a pilot test and uses only Romanian data. In what follows, the main properties of gradable adjectives will be discussed, followed by a discussion on the asymmetric behaviour of some absolute adjectives when used in relation to negation. In section (3), the online judgement test is described, with an emphasis on the main hypotheses, predictions, items and procedure. The paper ends with the discussion of the main results and indicates possible follow-up studies.

## 2 Gradable adjectives

### *2.1 Properties of gradable adjectives*

Gradable adjectives have been extensively investigated in the literature and various classifications have been suggested (Croft and Cruse 2004; Kennedy 1999; 2001; 2007; Kennedy and McNally 2005; Mayo et al. 2004; Paradis and Willners 2006; Rotstein and Winter

2004; Toledo and Sassoon 2011; Yoon 1996; Unger 1975). First, gradable adjectives can be either 'relative' or 'absolute' adjectives. Expressing increasing or decreasing measures, relative adjectives (*tall, wide, intelligent*) can be laid out on a scale, denoting a range on the associated scale but lacking maximal or minimal values. They have context-dependent standards of comparison based on the properties of the adjectives and on the features of the context of utterance (Kennedy 2007). In order to have the standard established, comparison classes are needed, as indicated by the *for* PP in the following example: *a tall boy for his age*. They generate open scales, their standard lying at some point along the scale.

In contrast, absolute adjectives have context-independent, endpoint-oriented standards of comparison, i.e. their interpretation is based on a conventionally fixed standard of comparison. The standards of comparison come in two subtypes, leading to a distinction between maximum and minimum standard adjectives (Kamoen et al. 2011). The minimum standard requires their arguments to have some minimal, non-zero degree of the property in question (*wet, open, dirty*), while the maximum standard requires their arguments to have a maximal degree of the property (*dry, closed, clean*). As a result of their boundedness, i.e. when their standard is located at their scale's absolute maximum or minimum point, they are said to form partially closed scales: for instance, *dirty* generates a lower closed scale, while *clean* generates an upper closed scale, as a result of the standards they relate to.[1] There are also absolute adjectives that generate fully closed scales, i.e. they are compatible with either minimum or maximum standard interpretations in the positive form (*opaque/transparent, full/empty*). They display interpretive variability and can take on maximum standard interpretations in some contexts and minimum standard interpretations in others (Kennedy 2007).

In an antonymic pair of absolute adjectives, because they share the same scale and differ only by the ordering relation, one term is usually a maximum standard adjective and the other one is a minimal standard adjective. Since a minimal positive degree corresponds to a maximal negative degree on the same scale, the entailment relations lead to symmetric patterns, i.e. the negation of one term entailing the assertion of the other (1a–c). In contrast, relative adjectives lead to asymmetries, as shown in (1d) (the examples are taken from Kennedy and McNally 2005: 359):

(1) (a) The door is not open (closed). $\models$ The door is closed (open).
(b) The table is not wet (dry). $\models$ The table is dry (wet).
(c) The baby is not awake (asleep). $\models$ The baby is asleep (awake).
(d) The door is not large (small). $\not\models$ The door is small (large).

Second, gradable adjectives can also be classified based on their logical properties (see Horn 1989). The theory of opposition discusses the logical relations displayed in the square of opposition. Contradictoriness and contrariety are two of the four logical relations. Contrariety characterizes the propositions or concepts that cannot be true at the same time but can be simultaneously false. A middle ground is created, allowing for a 'neither-nor' interpretation. In contrast, the members of a contradictory pair cannot be true or false simultaneously and do not allow a middle ground. Absolute and relative adjectives give rise to different types of opposition when negated: absolute adjectives give rise to contradictory negation while relative adjectives give rise to contrary negation.

Third, gradable adjectives are classified based on criteria such as gradability, oppositeness and boundedness (Paradis 2001). Opposed to non-gradable adjectives (*daily*, *classical*), gradable adjectives are further divided into 'bounded' vs. 'unbounded' adjectives,

[1] The 'minimum – maximum' dichotomy is also known as as 'total vs. partial' distinction (Cruse 1980; Rotstein and Winter 2004; Yoon 1996), where the minimum degree corresponds to partial predicates and the maximal degree of the property in question to total predicates.

on the one hand, and 'scalar' vs. 'non-scalar', on the other. Unbounded adjectives can be laid out on scale but they never reach the end-point, do not express any boundary, which makes the expression *neither wide nor narrow* perfectly natural. Bounded adjectives are absolute and divide some conceptual domain in two distinct parts (Paradis and Willners 2006: 1052). In consequence, the entailment relations hold for both members of the adjectival pair: "she is dead" entails that "she is not alive" and "she is alive" entails that "she is not dead". The adjectives are complementary and can be conceptualised as *either dead or alive*. Scalarity is a feature of unbounded adjectives, as they express a range on a scale. Bounded adjectives are considered non-scalar, as there are no degrees implied. To illustrate, *dead* and *true* are examples of gradable, non-scalar and bounded adjectives while *long, good* and *nasty* are examples of gradable, scalar and unbounded adjectives.[2]

Although there are theoretical differences between 'relative vs. absolute' adjectives and 'bounded vs. unbounded' adjectives, the two classifications share similar features which complement one another. Accordingly, the following correlations can be made: relative – unbounded adjectives and absolute – bounded adjectives. Therefore, relative adjectives are inherently scalar and unbounded, whereas absolute adjectives are inherently bounded and non-scalar. Claiming that absolute adjectives are non-scalar is not in contradiction with the typology of scale structures suggested in Kennedy and McNally (2005) and Kennedy (2007), as non-scalar here is used in the sense that there are not any intermediate degrees involved along the scale. In other words, absolute adjectives generate closed scales which have a minimum or a maximum degree but there are no intermediate degrees involved along the scale. In order to make the article reader friendly, only the labels relative and absolute adjectives will be used throughout the paper.

### *2.2 Asymmetries*

Recent studies have shown that absolute adjectives have an asymmetric behaviour when used in relation to negation, four combinatorial patterns being identified for Swedish (Paradis and Willners 2006).[3] These results indicate that some of the adjectives investigated tend to show scaling potential,[4] posing a challenge to the hypothesis in Kennedy and McNally (2005) and Kennedy (2007), according to which absolute adjectives behave uniformly when used in relation to negation:

(2)
| | | |
|---|---|---|
| (a) | dead = not alive | alive = not dead |
| (b) | wrong = not right | right ≠ not wrong |
| (c) | bound ≠ not free | free = not bound |
| (d) | empty ≠ not full | full ≠ not empty |

[2] The former belong to the class of *limit* adjectives, while the latter to the class of *scalar* adjectives (Paradis 2001: pp). There is also a third class of adjectives, the extreme adjectives (*terrible, brilliant*) which are gradable, scalar and bounded.

[3] Paradis and Willners propose the distinction between bounded adjectives which lack the designated property (X) and adjectives that have the designated property (Y), distinction which corresponds broadly to the minimum – maximum and total – partial distinctions in the literature.

[4] The sentences that were tested in Paradis and Willners (2006) are the following: *The glass on the table was (not) empty/full*; *The sum in the income tax return form was (not) wrong/right*; *The fly on the windowsill was (not) dead/alive*; *The elephant at the Zoo was (not) sterile/fertile*; *The reindeer on the mountain were (not) bound/free*. The task of the participants was to rate on an 11-point scale 'How much was there in the glass?' for the *empty/full* pair of adjectives, or 'How well did the numbers match?' for the *wrong/right* pair, where the end-points were represented by 'nothing at all' and 'maximal' and 'not at all' and 'completely', respectively.

The first pattern highlights absolute adjectives that have an inherently bounded structure and preserve the entailment relation *not A* = *B* and *not B* = A.[5] The two expressions are said to express the exact same meaning, the negator being interpreted as a logical operator which expresses the absolute opposite *p* versus ¬ *p* (Paradis and Willners 2006: 1073). In contrast, the fourth pattern shows that neither of the adjectives preserve the entailment relation. Although *full* and *empty* have bounded end-points, these adjectives also show scaling potential, i.e. displaying a scale structure.

Both patterns in (2b) and (2c) display asymmetries but only at the level of one member. The second pattern shows a symmetric relation between *wrong* = *not right* but there is an asymmetry between *right* ≠ *not wrong*. In contrast, the third pattern shows a symmetric relation between *free* = *not bound* but an asymmetric one between *bound* ≠ *not free*. Looking at the adjectives, *wrong* is a maximum standard adjective while *right* is a minimum one, and *bound* is a maximum standard adjective and *free* is the minimum one, respectively. The two patterns seem to behave exactly the opposite way. Paradis and Willners (2006) discuss the asymmetries between the adjectives in terms of scaling potential, i.e. *right* and *bound* are interpreted as being scalar in comparison with the typical bounded adjectives (*dead* and *alive* in this case). The authors highlight the configurational complexity of bounded adjectives and point towards their contextual readings, concluding that contextual requirements play a major role in the process of meaning construction.

There have been more theoretical attempts to explain the asymmetric behaviour of gradable adjectives in the literature but they do not seem to explain all the patterns identified in Paradis and Willners (2006). First, the asymmetrical patterns (2b) and (2c) pose problems to the prediction regarding the symmetric behaviour of minimum and maximum standard adjectives in relation to negation (Kennedy and McNally 2005): contrary to the initial prediction, the bi-implication relation holds neither for the minimum item in (2b) nor for the maximum one in (2c). The fact that one item has a maximum and the other one a minimum standard does not seem to be enough to have the entailment relation preserved. Furthermore, the standard of the adjective does not seem to be the factor triggering the asymmetries as in some cases the maximum standard adjectives display scaling potential while in others the minimum standard adjective. Second, pattern (2c) may be the expected outcome if we take into consideration Horn's postulation about the behaviour of unmarked terms with negation: "The negation of a favourable (unmarked) term typically conveys the affirmation of an unfavourable (marked) term, but not necessarily vice versa." (Horn 2014). However, this applies neither to the second pattern where the unmarked term gives rise to the asymmetric pattern nor to the third pattern where the marked term gives rise to a symmetric pattern. To sum up, none of these accounts seem to explain entirely when and why these asymmetries appear.

## 3 The pilot test

### *3.1 Preliminaries*

When the bi-implication *not A* = *B* is preserved the adjectives are interpreted as expressing the same meaning: for instance, a person who is *not dead* is *alive*. If the bi-implication can no longer be applied, then the adjectives are said to have some scalar features. As shown in Paradis and Willners (2006), some absolute adjectives may be interpreted as a hybrid between the typical absolute adjectives and the relative ones: they have a 'neither-nor' interpretation which indicates that their denotation can be laid out on a scale.

[5] As indicated by a reviewer, the relations *not A* = *B* and *not B* = A described in Paradis and Willners (2006) as entailment are rather relations of bilateral entailment or equivalence between the adjectives. In the same spirit, Cruse (1986: 199) uses for adjectives like *dead* and *alive* the label 'complementaries' indicating that they are governed by a relation of bi-implication, i.e. entails and is entailed.

While the negative operator *not* usually denotes the entire negative part of the scale, which may give rise to ambiguous readings between an absolute and a relative interpretation, negative affixes like *un-, in-, non-* have more precise encodings, denoting different positions on the scale (De Clercq 2013; Horn 1989: 280–3). When the polar opposite *B* is lexically available, *un-* and *in-* denote the outer negative end of the scale, invoking a middle ground.[6] In contrast, *non-* forms non-scalar compounds, usually creating binary opposites and giving rise to contradictory negation. Additionally, the affixes have different functions: *non* is used to classify, indicating that the property is absent, while *un-* and *in-* are used to characterize, usually invoking a scale between two opposed predicates (De Clercq 2013). In order to investigate the interpretation of a negated absolute adjective *nu A* 'not A', a survey has been conducted, in which the interpretation of *nu A* 'not A' is tested against possible non-morphological and morphological equivalents, such as: the polar opposite *B*, i.e. the lexicalised antonym of *A*, the affixal negation *neA* 'unA' and the affixal negation *non-A* (see Appendix 1, where all these theoretical possibilities are illustrated).

Our assumption is that the weaker sentential negation *nu A* may be used as a substitute for the stronger option, i.e. the negative prefixes or the lexical antonym. In other words, sentential negation *nu A* 'not A' may be equivalent in meaning with the polar antonym *B* or the *un-/in-* or *non-* negative compounds, as shown below:

(3) (a) *nu A* 'not A' = *B*
(b) *nu A* 'not A' = *neA* 'unA'
(c) *nu A* 'not A' = *non-A*

While (3a) and (3c) suggest that *nu A* 'not A' is to be interpreted as contradictory negation, (3b) suggests that *nu A* 'not A' is to be interpreted as contrary negation. The difference between (3a) and (3c) is that the lexical antonym *B* points to the absolute end of the scale (*open – closed*) while the *non-A* compound gives rise to binary opposites (*black – non-black*). Although a productive affix in English and in French, *non-* is not very productive in Romanian, especially when the lexical antonyms *B* of the absolute adjective is lexicalised. The following predictions have been tested:

- If *nu A* 'not A' is found to express the same meaning as the polar opposite *B*, then both of them are absolute adjectives with a conventionally fixed standard. They have an 'either-or' interpretation and they bi-implicate each other when used in relation to negation.
- If *nu A* 'not A' is found to express the same meaning as *neA* 'unA', then the adjective has a relative-like interpretation and can be displayed on a scale.
- If *nu A* 'not A' is found to express the same meaning as *non-A*, then the adjective is absolute, leading to an 'either-or' reading and a binary opposition.

### *3.2 Material and procedure*

The software used for the online judgement test is SurveyMonkey,[7] an online survey development cloud-based software. A web link was generated and made public on social media for three weeks.[8] The survey was anonymous and no information regarding the partici-

[6] In comparison with De Clercq (2013) who, following Zimmer (1964), considers the prefixes *un-* and *in-* to be allomorphs, i.e. they undergo morphological change due to the adjectival stem to which they attach, Horn (1989: 282–3) distinguishes between them: unlike *in-* which tends to be assigned a contrary connotation, often involving an opposition to some expected or established norm, *un-* is situated between the *in-* and *non-* forms, depending on how productively or freely the prefix combines with a given base. We remind the reader that for consistency reasons we use the following correlations: contradictory/absolute and contrary/relative.

[7] https://www.surveymonkey.com/dashboard/.

[8] The study targeted mainly non-linguits and, therefore, the link was available on different parenting groups on social media.

pants' name, age, sex or occupation was demanded. The language used for the questions and answers was Romanian. 66 native speakers of Romanian participated. In the instructions presented before the survey it was clearly stated that the participants needed to be native speakers. In addition, the survey was available on different groups on social media were the only language used was Romanian.

The following question was addressed to the participants: *Which of the following answers express in your opinion the same meaning as the following negative utterance: "Subj. is not A"?*. All the questions had the same form: the subject (subj.), the verb 'to be' in the present tense (*este* 'is'), the negative operator (*nu* 'not'), and the absolute adjective (*A*). The subject was represented by either nouns (*the animal, the answer, the glass, the author, the premise, the writer, the student*) or the pronoun *he*. No other contextual information was provided. The participants could see only a question at a time and they could not continue unless an answer was provided. Given the nature of the study, no distractors were used.

The participants were asked to indicate whether the meaning of the *nu A* 'not A' structure was represented by the following three options: (a.) the corresponding polar opposite *B*, (b.) the affixal negation *neA* 'unA', (c.) the affixal negation *non-A*. The fourth option is represented by "other; please specify", as shown in Figure 1. The four possible answers were randomised when presented to the participants. If the first three options are meant to be measured quantitatively, the fourth one is designed qualitatively, requesting a written answer in order to collect different possible meanings for the negative utterance. To illustrate, one of the questions is: *Which of the following answers express in your opinion the same meaning as the following negative utterance: The animal is not alive?*. The following options were presented: *it is dead, it is unalive, it is non-alive* and *other, please specify*.

Table 1 shows the adjectives that have been tested. The first four pairs (*dead/alive, wrong/correct, bound/free, empty/full*) are taken from Paradis and Willners' study and five more pairs have been added for the sake of diversity, 18 adjectives being tested in total. In choosing the adjectives, the following conditions had to be met: first, the adjectives should be absolute, i.e. they should have a definite end-point and have a non-scalar meaning and, second, both the adjective and the polar opposite should be equally lexicalised.

If the adjective in the positive form and the polar opposite are both lexically available, the negative compounds present different constraints. For instance, Horn (1989: 274–6) points out the tendency of evaluatively positive or neutral stems to form negatively affixed adjectives. This highlights the availability of only these stems (or of

**Table 1:** The adjective list.

| **Pairs of adjectives** | | **English translation** |
|---|---|---|
| *mort* | *viu* | 'dead'/'alive' |
| *greşit* | *corect* | 'wrong'/'correct' |
| *închis* | *liber* | 'bound'/'free' |
| *gol* | *plin* | 'empty'/'full' |
| *bolnav* | *sănătos* | 'ill'/'healthy' |
| *vinovat* | *inocent* | 'guilty'/'innocent' |
| *fals* | *adevărat* | 'false'/'true' |
| *anonim* | *cunoscut* | 'anonymous'/'known' |
| *distrat* | *atent* | 'distracted'/'attentive' |

unmarked contradictory adjectives) for negative prefixation: *unclean* and *unsafe* are possible but *undirty* and *undangerous* are not. De Clercq and Vanden Wyngaerd (2019) discuss a syntactic constraint, according to which two immediately consecutive negative features are impossible in the functional sequence. Following these accounts, only the items in the second column in Table 1 should form negative compounds with *ne-* 'un'.

Other factors that play an important role in the derivation of the negative compounds are the degree of lexicalization and the frequency of use. After forming the compounds in order to verify their frequency and degree of lexicalisation (see Appendix 2 where all the adjectives together with their compounds are displayed), we have checked them in the dictionary (https://dexonline.ro/[9]), in a corpus of contemporary Romanian language *CoRoLa: Corpusul de referință pentru limba română contemporană* (http://corola.racai.ro/) and online (https://www.google.com/). As expected, their frequency of use and degree of lexicalisation vary, as follows. First, if the compounds appear in the dictionary, then they are attested forms, fully lexicalised and frequently used. *Incorect* 'incorrect', *nesănătos* 'unhealthy', *nevinovat* 'unguilty', *neadevărat* 'untrue', *necunoscut* 'unknown', *neatent* 'unattentive' are in this situation. There are three adjectives that are attested as old or archaic words: *neliber* 'unfree', *neînchis* 'unbound', *nemort* 'undead'. There are also two negative adjectives that have polysemantic meanings: *negreşit* 'undoubtedly' when used as an adverb and *nesănătos* 'unhealthy' when used with inanimate subjects. However, these should not pose any problems of interpretation, as the questions used in the survey explicitly demand for the adjectival form.

Second, if they appear in written or oral corpora and not in dictionaries, it means that they are used by native speakers but they are rather new, recently formed items. Third, if the compounds only appear online, it means that people use them, but their frequency is reduced in comparison with the ones present in corpora. To illustrate, in addition to the ones having a dictionary entry, *neviu* 'unalive' and *neliber* 'unfree' have been found in the consulted corpus and *neanonim* 'unanonymous', *neplin* 'unfull', *neînchis* 'unbound' *and nebolnav* 'unill' appeared mostly online. Only a reduced number of occurrences (mainly online occurrences) have been found for *nemort* 'undead', *negol* 'unempty', *nefals* 'unfalse', *nedistrat* 'undistracted'. The occurrences found online are part of literature extracts, names of songs or technical texts. Regarding the compounds with the *non-* affix, they do not appear in the dictionary and are not very productive. The following have been found online: *non-bolnav* 'non-ill', *non-sănătos* 'non-healthy', *non- adevărat* 'non-true', *non-cunoscut* 'non-known', *non-anonim* 'non-anonymous'. On balance, taking a look at all the negative compounds, it appears that 11 compounds from eight adjectives (six *neA* compounds and five *non-A* compounds) are used, as follows:

- three adjectives can form both *neA* and *non-A* compounds: *sănătos* 'healthy' (*nesănătos, non-sănătos*), adevărat 'true' (*neadevărat, non-adevărat*) and *cunoscut* 'known' (*necunoscut, non-cunoscut*)
- three adjectives form *neA* compounds: *corect* 'correct' (*incorect*), *vinovat* 'guilty' (*nevinovat*), *atent* 'attentive' (*neatent*)
- two adjectives form *non-A* compounds: *bolnav* 'ill' (*non-bolnav*), *anonim* 'anonymous' (*non-anonim*)

[9] Dexonline is an online platform that gathers information from multiple sources, such as *The Explanatory Dictionary of the Romanian Language, The Orthographical, orthoepic and morphological dictionary of the Romanian language, The Dictionary of Synonyms* and *The Dictionary of Antonyms.*

Taking a comparative look at the negative compounds with *ne-* 'un-', these findings reveal that the lexical and syntactic constrains are to some extent overriden by the way in which they are used. According to the former, all the adjectives denoting the absence of some negative or undesirable property can form negative compounds, but it appears that only *incorect* 'incorrect', *neatent* 'unattentive', *nesănătos* 'unhealthy', *neadevărat* 'untrue' and *necunoscut* 'unknown' are lexicalised. In contrast, *nevinovat* 'unguilty', which has a marked stem, is also a lexicalised negative compound.

### *3.3 Results and discussion*

Choosing more than one option was possible in the survey. Choosing only one option indicates that there is meaning correspondence between the negative utterance and one of the possible answers. If the participants choose more options, it indicates that they consider that the meaning of *nu A* 'not A' is found in the combination of these answers. If the option 'other' is chosen, it indicates that they consider the intended meaning of *nu A* 'not A' to be different from the given possibilities. Unlike previous studies that propose participants a scale, this survey is designed as a 'yes or no' question, where each answer stands for a different interpretation. In this way, the scaling potential is measured indirectly.

The study is designed so that for every question six answer types are available – *100, 010, 001, 110, 101, 011*, where *1* stands for the chosen answer and *0* for the answers that have not been chosen:

- 100: only the polar opposite *B* has been ticked
- 010: only *neA* 'unA' has been ticked
- 001: only *non-A* has been ticked
- 110: both the polar opposite *B* and *neA* 'unA' have been ticked
- 101: both the polar opposite *B* and *non-A* have been ticked
- 011: both *neA* 'unA' and *non-A* have been ticked

Although there were 66 participants in total for each question, the number of answers varies depending on the question, as the following answers have been disregarded due to inconsistency: the answers where all the options have been chosen and the answers where the participants have chosen 'other, please specify' and one of the three options. Table 2 summarizes the counts for all the answers each adjective has received, as well as the number of the discarded answers. While there are some peaks, none of the questions has received only one type of answer.

In order to interpret the significance of the different distributions of the answer types and to identify the profiles of the adjectives, the *Principal Component Analysis (PCA)* has been carried out and the *Rstudio* software and the *FactoMineR* and *Factoshiny* packages have been used. PCA is used to study the similarities between individuals by taking into account all the variables. It identifies the individuals' profiles by summarizing a data table where the individuals are described by (continuous) quantitative variables (Cornillon et al. 2012: 209). PCA is a factor analysis in the sense that the principal axes resulted are linear combinations of the initial variables, which are in turn ordered and independent. The strength and importance of PCA is given by this independence of the new variables which were highly correlated in the beginning. In other words, PCA makes it possible to reduce the large number of explanatory variables to three or four components and to summarize the mass of information present in the dataset in a visual way.

**Table 2:** Results.

| Answer type | viu | | mort | | corect | | greşit | | liber | | închis | | plin | | gol | | bolnav | | sănătos | | vinovat | | inocent | | adevărat | | fals | | cunoscut | | anonim | | atent | | distrat | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 56 | | 60 | | 16 | | 41 | | 43 | | 43 | | 24 | | 25 | | 56 | | 42 | | 3 | | 28 | | 27 | | 42 | | 16 | | 46 | | 6 | | 50 |
| 010 | 2 | | 0 | | 22 | | 5 | | 6 | | 11 | | 23 | | 17 | | 3 | | 8 | | 45 | | 21 | | 11 | | 5 | | 24 | | 5 | | 34 | | 3 |
| 001 | 2 | | 3 | | 2 | | 11 | | 5 | | 4 | | 12 | | 14 | | 2 | | 2 | | 1 | | 6 | | 4 | | 7 | | 3 | | 4 | | 2 | | 6 |
| 110 | 1 | | 0 | | 21 | | 0 | | 1 | | 5 | | 1 | | 0 | | 1 | | 10 | | 14 | | 4 | | 20 | | 5 | | 19 | | 5 | | 22 | | 4 |
| 011 | 0 | | 0 | | 0 | | 0 | | 1 | | 0 | | 0 | | 0 | | 0 | | 0 | | 1 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 |
| 101 | 3 | | 2 | | 0 | | 2 | | 1 | | 0 | | 0 | | 1 | | 2 | | 1 | | 0 | | 1 | | 0 | | 4 | | 0 | | 1 | | 0 | | 1 |
| Total answers | 64 | | 65 | | 61 | | 59 | | 57 | | 63 | | 60 | | 57 | | 64 | | 63 | | 64 | | 60 | | 62 | | 63 | | 62 | | 61 | | 64 | | 64 |
| Discarded answers | 2 | | 1 | | 5 | | 7 | | 9 | | 3 | | 6 | | 9 | | 2 | | 3 | | 2 | | 6 | | 4 | | 3 | | 4 | | 5 | | 2 | | 2 |

Applied to the present study, this analysis helps us identify clusters of adjectives and create their profiles. PCA is applied to the information displayed in Table 2, where the rows are the variables (i.e. the possible answer) and the adjectives represent the population. The intersection of a column with a row indicates the number of participants that gave that particular answer to that particular question. For example, if we look at the intersection between *sănătos* 'healthy' and the column *101* we have the number *1* which means that one person has given the answer *101* to this question. PCA reduces the number of dimensions (the six possible answers in our case) to two or three. Having more concise data to examine, similarity patterns can be more easily found between the adjectives.

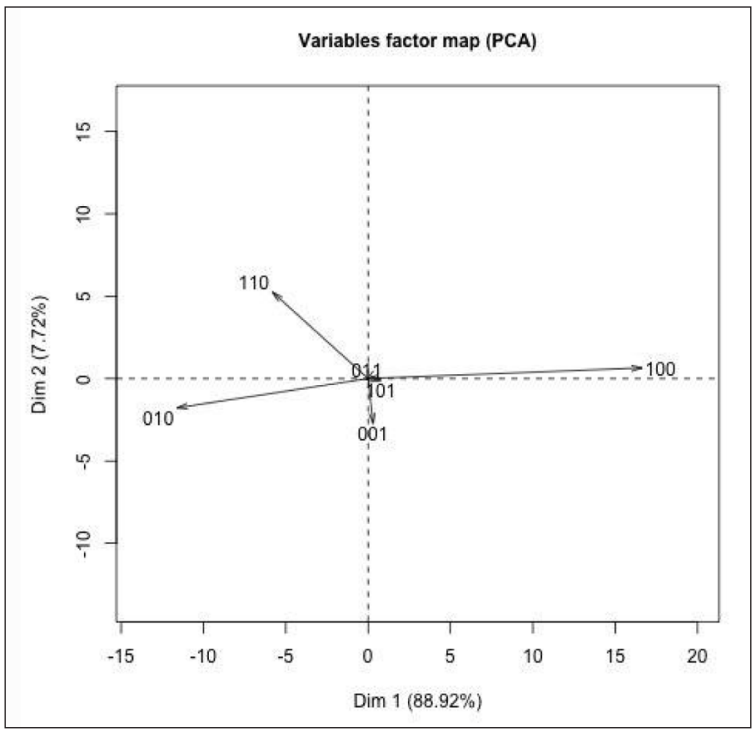
The last two answer types can be easily dismissed as the numbers are very small: $<2\%$ for *011* and $<3\%$ for *101*. This means that the participants considered that the intended meaning for the negative utterance *nu A* 'not A' is represented neither by the answer type *101* (the combination between the polar opposite *B* and the affixal negation *non-A*) nor by the answer type *011* (the combination between the affixal negation *neA* 'unA' and the affixal negation *non-A*). Therefore, the profiles of the adjectives investigated are a result of the different combinations of the four answer types: *100, 110, 010, 001*.

*Dim1* and *Dim2* in the *Variables factor map* illustrated in Graphic 1a explain 96.6% of the variance of the information, which means that if all the information is projected to these two components 96.6% of the data is preserved. The variables (i.e. the answers types) are represented by the arrows. The angle between two arrows or between an arrow and an axis gives the correlation of the answer with the axis or dimension: the smaller the angle the bigger the correlation (positive or negative). Orthogonality means no correlation whatsoever (for instance, the answer types *100* and *001* are orthogonal, i.e. they have no correlation, and therefore they are independent).

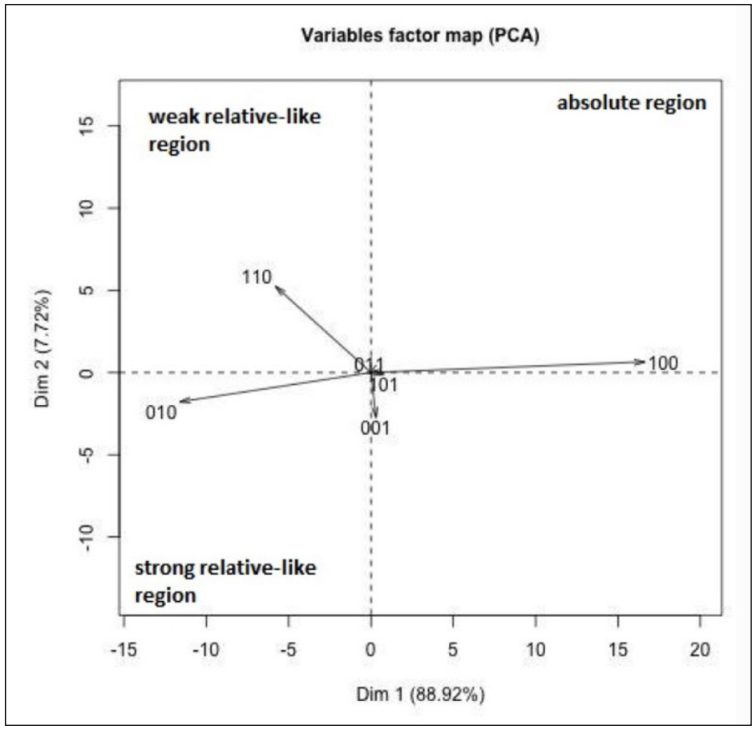
*Dim 1* and *Dim 2* indicate the different contributions of the answer patterns to the profiles of the adjectives. *Dim1* is positively correlated (value 0.99, p-value $< 0.01$) with the answer *100* and negatively correlated (value –0.96, p-value $< 0.01$) with the answer *010*. Therefore, the positive part of the axis *Dim1* is to be interpreted as the answer *100* and the negative part of the axis as the answer *010*. The orientation of the arrows points out towards a clear delimitation between these two answer types: an adjective which has many answers *100* has very few *010* and an adjective that has many answers *010* has very few answers *100*. This leads linguistically to a delimitation between an 'absolute' and a 'relative-like' region.

*Dim1* is also positively correlated (value 0.68, p-value $< 0.01$) with the answer *101* and negatively correlated (value –0.74, p-value $< 0.01$) with the answer *110*. The contribution of *101* to *Dim1* is very small ($<0.2\%$), so it can safely be ignored. The answer type *110* is situated in the relative-like region and is partially opposed to the answer type *100*. This means that the answer type *110* is to be interpreted linguistically as having a 'weak relative-like' reading because of the absolute features in its profile, in comparison with the answer type *010* which has 'strong relative-like' reading, as highlighted in Graphic 1b.

*Dim2* is positively correlated with *110* (value 0.67, p-value $< 0.01$) and negatively correlated with *001* (value –0.75, p-value $< 0.01$). This means that *Dim2* opposes some absolute features as indicated by the answer *001* (i.e. affixal negation *non-A*) and some relative-like features, as indicated by the answer type *110* (i.e. the weak relative-like interpretation). Building on these distinctions, in order to make the discussion more reader friendly, the numeric answer types will be replaced with some more meaningful notions, as follows: *100* with *ABS*, *010* with *strong REL*, *110* with *weak REL* and *001* with *reinforced ABS*.




**Graphic 1a:** The answer map.




**Graphic 1b:** The answer map with the relative-like and absolute distinction.

Concerning the interpretation of the adjectives vs. possible answer, the following remarks can be made: if an adjective is plotted close to the direction of an arrow (for instance, the answer type *strong REL* and *vinovat* 'guilty') that means that the adjective has received many of these answers. In other words, the answer type *strong REL* shapes the profile for *vinovat* 'guilty'. The following graphic shows the adjective map:

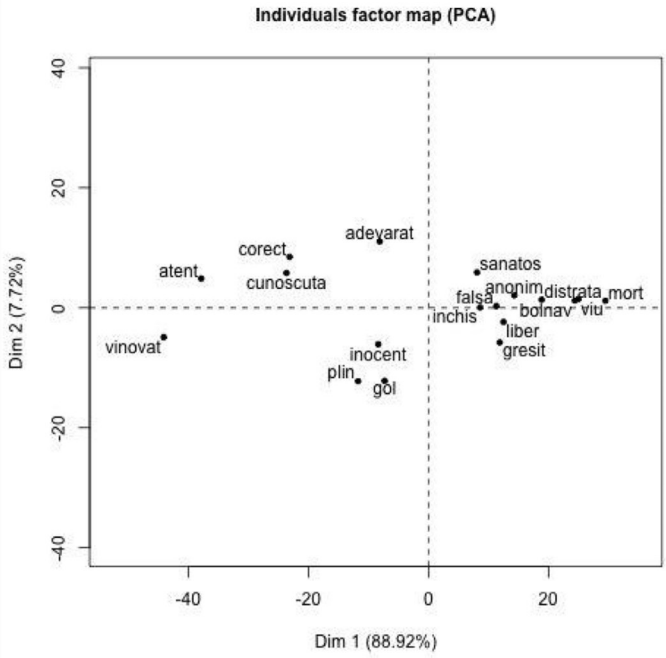



**Table 3:** The adjectives and their translation.

| | |
|---|---|
| viu 'alive' | mort 'dead' |
| corect 'correct' | greşit 'wrong' |
| liber 'free' | închis 'bound' |
| plin 'full' | gol 'empty' |
| bolnav 'ill' | sănătos 'healthy' |
| vinovat 'guilty' | inocent 'innocent' |
| adevărat 'true' | fals 'false' |
| cunoscut 'known' | anonim 'anonymous' |
| atent 'attentive' | distrat 'distracted' |

**Graphic 2:** The adjective map.

The projection of the adjectives on the axis *Dim1* gives the information about the answer types *ABS* and *strong REL*. The more the adjective is distant from the centre (either to the left or to the right), the larger is the difference between the answer types *ABS* and *strong REL*. The closer it is to the centre, the closer are the counts for the answer types *ABS* and *strong REL*. The projection of the adjectives as a whole on *Dim1* is much bigger than the projection of the adjectives on *Dim2* which means that *Dim1* captures most of the information, i.e. the answer types *ABS* and *strong REL* give the core of the profiles for most of the adjectives. This is the reason why the cloud of adjectives is elongated along *Dim1* and rather narrow on *Dim2*. However, there are some adjectives which are represented on all three dimensions but with different distributions (for instance, *gol* 'empty' and *adevărat* 'true') and their interpretation will require a deeper analysis to describe their profile (see Appendix 3 for details).

The adjectives positioned to the right of the axis *Dim1* will be defined by the answer type *ABS*, i.e. they will have an *absolute profile* in the form of the polar opposite *B*. The following adjectives are in this situation: *mort* 'dead', *viu* 'alive', *bolnav* 'ill', *distrat* 'distracted', *liber* 'free', *anonim* 'anonymous', *fals* 'false', *închis* 'bound'. The more the adjectives are placed to the extremity *ABS* of the axis, the bigger the difference between *ABS* and *strong REL* will be. This means that *mort* 'dead' has received many *ABS* answers and very few or no *strong REL* answers at all. Given the fact that the adjectives are elongated on the right part of the axis *Dim1*, a further distinction among *mort* 'dead', *viu* 'alive', *bolnav* 'ill', *distrat* 'distracted', *liber* 'free', *anonim* 'anonymous', *fals* 'false', *închis* 'bound' is to be made: if *mort* 'dead' can be interpreted as an absolute adjective with no scaling potential, *închis* 'bound' shows some scaling potential, as it is placed nearer to the relative region and its profile is defined by a combination of *ABS* and *strong REL* answer types. Therefore, *mort* 'dead', *viu* 'alive', *bolnav* 'ill', *distrat* 'distracted', *liber* 'free', *anonim* 'anonymous', *fals* 'false', *închis* 'bound' can be further classified according to their scaling potential, ranging from no scaling potential to little scaling potential, as follows:

- *mort* 'dead' is the only adjective that has an absolute reading by excellence and does not seem to show any scaling potential.
- *viu* 'alive' and *bolnav* 'ill' display similar patterns and indicate a strong absolute reading with very little scaling potential.
- *distrat* 'distracted', *anonim* 'anonymous' and *liber* 'free', and fals 'false' show little scaling potential. The slightly different position they occupy on the axis *Dim1* is given by the contribution the other answers make to their profiles.
- *închis* 'bound' is an absolute adjective that displays some scaling potential.

The adjectives positioned to the left of the axis *Dim 1* will be defined by the answer types *strong REL* and *weak REL,* respectively. The following adjectives are in this situation: *vinovat* 'guilty'*, atent* 'attentive'*, corect* 'correct'*, cunoscut* 'known'. If *vinovat* 'guilty' can be interpreted as a strong relative-like adjective, the profile of *atent* 'attentive' is a combination between the two (hence its position between the *strong REL* and *weak REL* arrows in Graphic 2). The fact that *atent* 'attentive', *corect* 'correct' and *cunoscut* 'known' have the answer type *ABS* in their profiles situates them higher in the weak relative-like region.

There are also some adjectives positioned either in the absolute or in the relative-like region but farther away from the axis *Dim 1*. *Sănătos* 'healthy' and *greşit* 'wrong' are in this situation. They are on the absolute side, but *sănătos* 'healthy' is placed higher than the rest of the adjectives, which means that it displays some scaling potential (given by *weak REL* answer type), while *greşit* 'wrong' is placed lower in the absolute region. This means that *greşit* 'wrong' has a reinforced absolute profile, given by the combination of *ABS* and *reinforced ABS* answer types in its profile.

In contrast, *adevărat* 'true', *inocent* 'innocent', *plin* 'full' and *gol* 'empty' are on the relative-like side. *Inocent* 'innocent' and *plin* 'full' are found in the graphic very close to the intersection between *ABS, strong REL, reinforced ABS* and *weak REL*, which means that the two adjectives can be considered either absolute or relative-like depending on the context in which they are used. There are two adjectives which seem to be represented on all dimensions: *adevărat* 'true' and *gol* 'empty' are in this situation. A different analysis is necessary in order to identify their profiles.

## 4 Concluding remarks and future directions of research

In light of recent results, absolute adjectives are said to behave asymmetrically, as some adjectives have, in addition to the bounded structure, some scalar features. The present online judgement test was designed in order to investigate the interpretation of absolute adjectives in relation to negation in Romanian. The data collected was analysed using the *Principal Component Analysis* (the Rstudio software and the FactoMineR and Factoshiny packages). The two graphics – the answer map and the adjective map – summarised and presented visually the profile of 18 adjectives, forming nine pairs: *mort-viu* 'dead-alive', *liber-închis* 'free-bound', *plin-gol* 'full-empty', *greşit-corect* 'wrong-right', *bolnav-sănătos* 'ill-healthy', *vinovat-inocent* 'guilty-innocent', *adevărat-fals* 'true-false', *cunoscut-anonim* 'known-anonymous', *atent-distrat* 'attentive-distracted'.

Four answer types contributed to the profiles of the adjectives: *ABS, weak REL, strong REL, reinforced ABS*. The two graphics showed that the adjectives clustered differently based on their profiles. While *Dim1* was defined by the answer type *ABS* on the positive part and by the answer types *strong REL* and *weak REL* in the negative part, *Dim2* was defined by the answer type *weak REL* on the positive part and the answer type *reinforced ABS* on the negative part. On the answer map, it can be seen that *Dim1* opposes the two

possible answers *ABS* and *strong REL*, which means that they divide the graphic in two sides according to their profile: an 'absolute' side (where the absolute interpretation comes from choosing the polar opposite *B*) and a 'relative-like' side (where the relative-like interpretation comes from choosing *neA* 'unA'). Furthermore, the relative-like side can be divided into 'strong relative-like' and 'weak relative-like', because on the left side of the graphic the answer type *weak REL* is generated (which is the combination between the polar opposite *B* and *neA* 'unA'). Therefore, the answer type *strong REL* is to be interpreted linguistically as having a 'strong relative-like' interpretation while the answer type *weak REL* is to be interpreted linguistically as having a 'weak relative-like' reading given the fact that it has some absolute features in its profile.

The adjective graphic shows that most of the adjectives are positioned along the axis *Dim1*, which means that their profiles are determined mostly by the answer types *ABS* and *strong REL*. The resulted correlations for each axis indicate that there is no clear-cut difference between an absolute and a relative-like interpretation but rather a continuum between them. The two graphics suggest a classification of the adjectives in question in three main categories: absolute adjectives, relative-like adjectives and adjectives that can go in either category:

(1) *absolute adjectives*, which suggest scaling features, ranging from displaying no scaling potential to having scaling potential: *mort* 'dead', *viu* 'alive', *bolnav* 'ill', *distrat* 'distracted', *anonim* 'anonymous', *liber* 'free', *fals* 'false', *închis* 'bound' and *sănătos* 'healthy'. *Greşit* 'wrong' is a reinforced absolute adjective, defined by the absolute polar opposite *B* and the *non-A* affixal negation.

(2) *relative-like adjectives*, where a distinction was made between *strong* and *weak* relative-like adjectives. *Vinovat* 'guilty' belongs to the first category while *atent* 'attentive', *corect* 'correct' and *cunoscut* 'known' are relative with absolute features (given by the answer pattern *ABS* in their profiles).

(3) adjectives that can take *either an absolute or a relative-like reading*: *inocent* 'innocent' and *plin* 'full' belong to this category. For *adevărat* 'true' and *gol* 'empty' the analysis was inconclusive. Their profiles are to be further investigated using different methods and statistical analyses.

In sum, the results highlight variation among the absolute adjectives as a class, variation inside the subclasses that have been identified and variation at the level of individual adjectives. First, absolute adjectives appear to be more hybrid than initially thought. Absolute adjectives were expected to behave uniformly but some of them appeared on the relative-like region, which leads to the following classification: *absolute – relative-like – relative*. In contrast with relative adjectives, the relative-like adjectives have scalar features in addition to the bounded structures.

Second, the results also indicate that there is variation in the profiles of the adjectives at the level of each category. For instance, the adjectives labelled as 'absolute adjectives' are displayed on a continuum, ranging from having no scaling potential to having scaling potential. In other words, the results show different degrees of scalarity which vary form one adjective to the other.

Third, the adjectives seem to have mixed profiles as a result of the different distributions of the absolute and relative-like features in their profiles. The source of this variation cannot be accounted for at this stage. It may be contextual, as a result of the lexical associations generated by the subject and the adjective or it may be due to the multiple contexts of interpretation the utterances generate. For instance, an utterance like 'The animal is

not free' does not provide explicit information about which animal the utterance refers to or the intended meaning of 'free'. Consequently, the participants may use scenarios to interpret this utterance which modify the reading of 'free' (*The animal is not free enough to run* or *The animal is not free for a horse of its size* etc.).

Contrary to expectations, the adjectives investigated do not seem to function in pairs but rather independently. Apart from *mort* 'dead' and *viu* 'alive' which seem to behave similarly, the rest of the adjectives do not display similar profiles with their antonym. More situations have emerged: 1. both members of the pair are in the absolute region but they show differences at the level of the scaling potential: *sănătos* 'healthy', *bolnav* 'ill'; *închis* 'bound', *liber* 'free'; 2. both members are in the relative-like region but they seem to have different degrees of scalarity: *vinovat* 'guilty', *inocent* 'innocent'; 3. the members are in opposite regions: *anonim* 'anonymous', *cunoscut* 'known'; *corect* 'right', *greşit* 'wrong'; *atent* 'attentive', *distrat* 'distracted'. The fact that the members of the pairs do not have similar profiles leads to the asymmetric patterns when they are negated.

In line with the results in Paradis and Willners (2006), no clear patterns can be identified with regard to the distinction between the 'maximum' and the 'minimum' standards adjectives. There seems to be a tendency (but there are also exceptions) as most of the adjectives characterised as the absolute adjectives belong to the minimum category (except *mort* 'dead', *liber* 'free' and *sănătos* 'healthy'), while most of the adjectives characterised as being relative-like seem to have maximum standards (except *vinovat* 'guilty'). In order to clearly state whether the distinction between maximum vs. minimum can be considered a significant difference and a reliable criterion, further investigations need to be conducted.

Three predictions have been formulated in section 2.1 and some remarks on the degree of lexicalisation and frequency of the negative compounds have been made in section 2.2. The predictions are not borne out for all the adjectives as a class, but they can be discussed based on the three categories of adjectives. The first prediction (If *nu A = B*, then the adjectives are absolute) is validated by the category of adjectives which were interpreted as having an absolute profile with little or no scaling potential. The relation of bi-implication can be applied to the following adjectives *mort* 'dead', *viu* 'alive', where the negation of one term entails the other one. The bi-implication relation can no longer be applied if some scaling potential is found in the profile of the adjectives. In other words, it is the different degree of scaling potential the members of the pairs have that leads to asymmetries.

The second prediction (If *nu A = neA*, then the adjectives have relative-like features) is also borne out by the adjectives found to have a relative-like profile (*vinovat* 'guilty', *atent* 'attentive', *corect* 'correct', *cunoscut* 'known'). The first three adjectives were expected to have a relative-like profile due to their high degree of lexicalisation and the frequency of use of the *neA* compounds.

The third prediction (If *nu A = non-A*, then the adjectives are absolute) is not borne out by the results. The answer type *reinforced ABS* was found statistically relevant (as it contributed to *Dim2*), but the extent to which this answer type shapes the profile of the adjectives is usually very reduced. Only the adjective *greşit* 'wrong' appears to have a reinforced absolute profile, i.e. its profile is given by the answers type *ABS* and *reinforced ABS*. Interestingly, the answer type *reinforced ABS* does not seem to influence the profile of the adjectives that form *non-* compounds (*non-anonim* 'non-anonymous' and *non-bolnav* 'non-ill'), as these appear to have an absolute interpretation with little scaling potential. The lexicalisation of the polar antonym *B* (which was the prerequisite for this study) has to some extent overridden the *non-A* compounds.

Two of the three adjectives that have compounds with both negative prefixes are found to have different profiles: *cunoscut* 'known' is found in the weak relative-like region while *sănătos* 'healthy' is found in the absolute region. Due to the fact that they are close to the centre, they share features with the opposite class: *cunoscut* 'known' is a weak relative-like because of the absolute features in its profile and *sănătos* 'healthy' is absolute with some relative-like features (responsible for its scaling potential). However, there does not seem to be a too big correlation between the tendency of the adjective to form negative compounds in natural language and the profiles of the adjectives. The results show that the profile of the adjectives are the results of the combination of the answer patterns regardless of the fact that the adjectives in question have lexicalised negative compounds or that the stems are positive or negative. In other words, these results do not support the theoretical claim according to which negative affixes are not used with adjectival stems that have a 'negative' value. To illustrate, taking into account the lexical and syntactic constraints, *vinovat* 'guilty' is not expected to form a negative compound with *ne-* 'un-', but this appears to be very productive. In fact, the results show that *vinovat* 'guilty' is the only strong relative-like adjective. One may think that, due to its high degree of lexicalization, *vinovat* 'guilty' and *nevinovat* 'unguilty' form an antonymic pair. However, the initial pre-testing shows that *nevinovat* 'unguilty' is not rated as having the same meaning with *inocent* 'innocent', occupying a lower position on the scale *vinovat* 'guilty' – *innocent* 'innocent'. Another example is represented by *neinocent* 'uninnocent' which does not have and is not expected to form a negative compound, but it has received many answers of this type. It may be the case that the participants have supplied the non-lexicalised compounds in order to fill in the gap between *nu A* 'not A' and the polar opposite *B*.

The present pilot test has revealed some novel findings in shaping the profiles of absolute adjectives. It has shown that the adjectives can be grouped in different categories based on their profiles. However, there is variation within these categories, which needs to be further investigated. Follow-up studies using more data and different statistical methods are necessary in order to further investigate the categories found, in general, and the division between weak and strong relative-like adjectives, in particular. One possibility would be to increase the number of the absolute adjectives under investigation in order to see whether the profiles can be more clearly shaped. Another possibility would be to replicate the test in different languages (for instance, English, French, German) to see whether the asymmetries found in the behaviour of absolute adjectives are a language specific or a cross-linguistic phenomenon.

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## Competing Interests

The author has no competing interests to declare.

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