

# Set of Formal Criteria to Identify Vietnamese Antonymous Pairs

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**Abstract** Antonymous phenomena in general and Vietnamese antonyms in specific have been studied for a long time. The results of these studies remain mainly on two points: firstly, clarifying the concept of antonyms; secondly, classifying antonyms. Setting of formal criteria that are used to identify antonymous pairs has not been studied yet. The paper aims at developing a set of formal criteria in order to easily identify and test Vietnamese antonymous pairs without encountering any counter-example that comes from the native speakers' intuition. The paper has formulated and described the list of logical, phonetic, semantic, pragmatic, and grammatical formal criteria. In which, the criteria of grammatical formal constructions, especially the possibility of co-occurrence of antonyms, have been deeply described through some typical, real texts.

**Keywords:** *antonyms, formal criteria, co-occurrence, grammatical constructions*

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## 1. Introduction

In Vietnamese linguistic, antonymy and antonym vocabulary have been studied since the 1960s and have obtained some remarkable results. Some of the typical authors who have contributed to this research are Do Huu Chau [1,2], Nguyen Van Tu [3], Nguyen Thien Giap [4], Duong Ky Duc, Vu Quang Hao, Nguyen Van Duc [5], Chu Bich Thu [6], Nguyen Duc Duong [7]. The research results of these works are mainly focused on two points: first, clarifying the concept of antonyms and second, classifying antonyms. Thus, establishing a set of the formal criteria used to identify pairs of antonyms is not properly noticed. Therefore, the paper sets the task of establishing such a set of formal criteria which can be applied to identify the pairs of Vietnamese antonyms in a grounded and easy way without encountering any counter-example that comes from the native speakers' intuition. The article established and described a list of form criteria belonging to five criteria groups such as logical, phonetic, semantic, pragmatic, and grammatical criteria. The grammatical criterion group, namely the co-existing ability of antonyms, has been focused on describing in a particular way during the language in some typical, real texts.

## 2. Form Criteria Used to Identify Antonyms

To be able to identify pairs of antonyms, we can rely on the following formal criteria groups:

### 2.1. Logical Criteria Group

Antonyms are words that must satisfy the relative criteria, meaning that two units of antonyms together are those that are in the same correlation. This is a common assumption in traditional studies. In fact, this criterion is a logical criterion, but what is logics (that is, how is correlation) is not mentioned and clarified by the traditional studies. For this reason, this article proposes aims to give the understanding that two vocabulary units are in the same correlation when they are elements of the same logical level. This means that two correlations are the two cohyponym together in the hyponymy with a hyeronym, even in some cases they may be the same meronym in the meronymy with a holonym.

X and Y are antonymous vocabulary units. Z is the superior vocabulary unit. We have the first formula to identify the antonym: both X and Y are a type (of) Z, but X is opposed to Y. Since antonymy is a symmetrical relation, therefore, this formula can be expressed such as: both X and Y are a type (of) Z, but X is opposed to Y; & both X and Y are a type (of) Z, but Y is opposed to X. For example, a pair of antonyms "*large – small*": both large and small are a type of attribute in terms of size, but large is opposed to small; Both *large* and *small* are a type of attribute in terms of size, but *small* in contrast to *large*.

The second logical criterion is used to identify the opposite, which is the symmetrical entailment. This criterion can be stated by the formula: X is opposed to Y, if:  $X = > Z \ \& \ Y = > Z$ . For example, with the pair of *Fast – Slow*: *fast* is opposed to *slow*, so *fast* is a kind of property in

terms of Speed; & *Slow* is opposed to *fast*, so *slow* is a kind of property in terms of speed (See more [8,9,10, 11,12]).

## 2.2. Phonetic Criteria Group

The words in a pair of antonyms are usually of equal material size. That is, if this pole is the size of a syllable, then that pole must also be a syllable, this pole is two syllables, the rest pole is also two syllables... example: *Heavy – Light, Love – Hate, Pretty – Ugly*. In free associations, this is an almost invariant principle; in practice, due to the pressure of context, the need for the occasional expression of this balance of material dimensions may no longer be maintained.

## 2.3. Semantic Criteria Group

- Words in a pair of antonyms must have homomorphic/isomorphic semantic structures together. That means the number of meanings in the structure of antonyms are equivalent, the meanings are corresponding to each other in pairs, the order of the meanings are the same. For example, *fast-slow* in a *fast car-slow car*. *Fast*: / has a speed over the normal or regulated level/, and *slow*: /has a speed under the normal or regulated level/.

- Words in a pair of antonyms must have the same semantic range. That is, the meanings of the same antonyms must manifest together an equally experienced area. For example, *evil-sage* all have semantic scope only *good-bad* attributes of human moral behavior. But the meaning refers to the “intense and cruel extent” of the semantic scope which describes a process of interaction (the brawl that takes place very fiercely) that is not within the semantic scope of *sage*, so *sage and evil* are not antonymous in this uncommon semantic scope.

- The words in the antonym pair must belong to a vocabulary – semantic field. For example, *buying – selling* belongs to the word group of business activities, *good – bad* belongs to the group of human quality assessment, *black – white* belongs to the group of color.

## 2.4. Pragmatical Criteria Group

- Words in pairs of antonyms appear in the same style, range of communication. For example, the couple of *wife – husband* (phu nhân- phu quân) appear only in ancient literature or in solemn diplomatic communication, the pairs of *wife-husband* (ông xã – bà xã, nhà – mình) appear only in intimate communication every day.

- The antonyms must be co-occurrence in definite contexts. The ability to co-occurrent is a factor that demonstrates correlation on the phonetic, grammatical, semantic and grammatical aspects of antonyms. One of the strong manifestations of this co-occurrence is the appearance of antonyms in definite grammatical structures (see grammatical criteria). The list of antonyms drawn up in this work is the list made according to the current synonyms of antonyms. For example, *running backwards* (chạy xuôi chạy ngược), *cutting off* (chặn đầu chặn đuôi), (see more [13]).

## 2.5. Grammar criteria group

- The words in a pair of antonyms must belong to the same category of words. This is an obvious criterion. Adjectives must go with adjectives. Verbs must go with verbs. The noun must go with the noun.

- Words in a pair of antonyms often have the same structural pattern. That means, the coordinated compound noun tends to be antonymous to the coordinated compound noun; the reduplicative words to the reduplicative words and the subordinate compound words to the subordinate compound words. For example: *by accidentally – on suppose, gently – strongly, loving – angry*.

- Words in pairs of antonyms are likely to be combined with a third word. For example: eggs, go, people in *fresh eggs- rotten eggs, go fast – go slow, good people – bad people*.

- Words in antonyms, especially monotypic antonyms, often have the ability to combine together to form a coordinated grammatical structure (usually a coordinated duplex). For example, *well –unwell; more – less; before – after and buying – selling*.

- Words in antonymous pair often have the same grammatical capacity. The autonomous words (independent operating) are antonymous to the autonomous words; the form words (words of non independent operating) are antonymous to the form words. For example, *un- – im-(prefix-); the Sky – the Earth (Thiên – Địa), the Sky – the Earth (Trời – Đất); the Sky – the Earth (Thượng giới – Hạ giới)*.

- Words in a pair of antonyms must be valid from the predicate. That is, in a pair of antonyms, antonyms must be words, or at least fixed terms. Free phrases are not recognized in antonyms. For example, the *maximum* is opposed to the *minimum*, is not opposed to the smallest quantity of matter.

- Antonyms in a pair of antonyms are not composed according to the negative paragraph model, in which the negative element belongs to the negative level of predicate. Therefore, it is impossible to say *beautiful, bad, buy, sell* antonymously in turn with *not beautiful, not bad, not to buy, not to sell*.

- Besides the above criteria, in Vietnamese there are some important grammatical structures that pairs of antonyms often have the ability to co-current inside. When it comes to that ability of antonyms, predecessor Vietnamese linguists usually refer only to a general observation that the Vietnamese antonyms are likely to appear in a context. Only Nguyen Van Tu (1962) is the only one who clearly indicates that antonyms mean words that may appear in “a sentence or a proverb, folk verses or in an idiom” ([3],p. 110). However, when it comes to this issue, the author has only pointed at the level of the phenomenon, but has not entered into more specific analysis or proof. And Duong Ky Duc, Vu Quang Hao and Nguyen Van Duc (1988), despite of giving an illustration of pairs of antonyms in co-occurrence contexts, they also did not even show out the type of grammatical structures that antonyms are likely to appear inside. In his studies [8,10,11,14], we began to pay attention to the

synonyms of antonyms in text, actual discourse, and have gradually discovered grammatical models that we call syntactic – vocabulary structures in which pairs of antonyms may appear, and viewed these grammatical models as one of the legitimate form criteria that can be used to identify antonyms. Through the survey of actual documents, with nearly 10000 co-occurrence contexts currently extracted from actual written texts (from journalism to literature), we found that antonyms in Vietnamese can appear in defined syntactic – vocabulary groups. These structures are grouped by semantic criteria. These are the following groups:

**1. The selected structures.** If A and B are the pairs of antonyms, A and B are antonyms that are interconnected by logical elements that signify the selected meaning. These are structures such as: *A or B, B instead of A, A not B, either A or B*. Structure **A or B** has some variations (structure): *A or B, or A or B, either A or B*. Structure **B instead of A** has variations: *B instead of A; A instead of B*. For example: *either yes or no; either finite or infinite; to buy not to sell; going instead of coming; winning or drawing; beautiful but not ugly; fast but not slow*.

**2. Homogeneous structure.** A and B are seen as entities, processes, or properties, which are connected by logical conjunctions or predicates that signify a homogeneous comparative meaning. These are structure such as: *A similar to B; A is the same to B, even when A is the same to B,...* For example, *friends similar to enemies, above is the same to below, either buyers or sellers, foreigners similar to native people, even when being rainy is the same to being sunny*.

**3. Synthetic structure.** A and B in this type of structure are regarded as entities, processes, or properties of the same category, of the same type. A and B are always capable of forming a superior concept. This is the reason why most pairs of antonyms in Vietnamese have the ability to combine to form a superior compound. A and B in case they belong to a semantic relationship, A and B are always likely to be a word at the same level in semantic relationship to a word C. C meaning consist of both B meaning and A meaning. A one-dimensional asymmetric inference is a logical operation that is often applied to concepts A, B, which are capable of co-occurrence in this synthetic structures. This group of structures consists of three small types inside such as: *both A and B, A and B, A with B*. The structure of **both A and B** has variations of *both A and B, both A even B*. For example, *back and forth, back and even forth, both importing and exporting, male and female, boys and girls, young and old,...*

**4. Negative structure.** A and B in this group are usually entities, processes or properties that are in completed opposition to each other. They have mutually exclusive values, but in this exclusion there is always a certain type of entity, process or third selected attribution C. The general model of this group of structures is: *neither A nor B; not A not B*. This structure has variations: *neither A nor B, not A not B, no A no B, not A and not B*. For example, *neither love nor hate, not buying not selling, neither well nor unwell, not beautiful not ugly*.

**5. Shifting structure.** This type of structure is very diverse, often denotes the measurable meaning of "shifting" from an A pole of entity, process or property to a

B pole of entity, process or property. Azimuth words are words that often appear in this group of structures. The important structures of this group are: *B after A, from A to B, from A towards B; from A over to B, from A in to B, from A down to B, from A up to B*. The structures of this consist of so many different variations, for example, *A over B, A over to B, inside out, outside in, top down, bottom up, from the East to the West/ East or West, from the South to the North*.

**6. Transition structure.** This group usually denotes the meaning of the transition from an A entity, process, state or property to B entity, process, state or property. There are important *transitive* structures: *A in to B, A become B, A turn into B, A turn out to be B, A change to B, A turn to B, A pretend to be B*. For example, *being good becomes being bad, losses turn out to be profits, winning becomes losing, ghosts turn out to be Buddha, being beautiful turns into being ugly, winter turns to summer, male pretend to be female*.

**7. Structure of judgment.** This structural group often denotes a certain judgment that A and B are opposite entities, processes, or attributes, simultaneously included inside it. These are the textures: *semi A semi B; half A half B; both A and B*. For example, *partly black and partly white, paartly pie murtual, neither light or dark, partly clever partly imclever, both go and forth; both love and hate, both buying and selling...*

**8. Reciprocal structure.** This structural group denotes the entities A, B. People often attribute them to pairs. Those pairs always go together. Referring to A as assuming a relation to the existence of B. The total periphery of A and B is always equal to the periphery of AB. The reciprocal structure has several important types: *AB together, X is A of Y and Y is B of X, X and Y is AB of each other*. For example, *husband wife together, student teacher together, brother sisters together, X is the teacher of Y, Y is the teacher of X, X and Y are husband wife together...*

**9. Positioning structure.** This type of structure always denotes an evaluation of the positioning value between two types of entities, processes, or attributes A and B. It's the structure: *between A and B*. For example, *between East and West, between South and North, between buying and selling, between buyer and seller, between good and evil...*

**10. Subjunctive structure.** Subjunctive structure is the type of structure that signifies the subjunctive meaning for a given selection. The general formula is *thought A or B, regardless of A or B, whether A or B*. For example, *whether rainy or sunny, whether right or wrong, regardless of being rainy or sunny, regardless of being right or wrong...*

**11. Mapped structure.** The mapped texture group has two subgroups. Subgroup of predicate structure: *V+ be + A or B, either A or B; what is + AB; how is A; how is B*. Subgroup of syntax structure: *V + what is A? V+ what is B? V + what is AB?* For example, *Mr. Ba does not know the right or the wrong/the good or the bad/ the enough or the lack/ the right or the left. Mr Ba doesn't know the diffirence from the left or the right. Mr Ba doesn't know the diffirence from the right or the wrong. Mr Ba doesn't know what right and wrong are. Mr. Ba doesn't know what the right or the wrong, the good or the bad are...*

**12. Theoretical structure.**  $A + P, A + P; \text{If } XA, YB.$  The structure  $A + P, A + P$  has two variations: *If*  $A + P, A + P$ , and  $A + P, A + P$ . In this structure,  $P$  is a syntax, a clause. For example, *Sunshine gets melon, the rain gets tomatoes; Spare the rod and spoil the child (taunt love); If you buy, then I will sell; If you give, then I will receive...*

**13. Testimony structure.** This is a group of structure that have a strong effect in Vietnamese. Most Vietnamese meanings refer to the ability to combine the antonym with a third word. This third word is often called the testimony word. That's why we call this structure group the testimony structure group. The testimony structure has following model:  $XA \text{ } XB, Ax1 \text{ } Bx2$ . These are structures that have repeated testimonies. Basically, this group of structures is very different from the groups mentioned above, although on the surface they have the same point that there are a few words that are not antonyms that are used repeatedly. In testimony structures, repeated words are real words; in the above mentioned structures, words that appear as testimony are often grammatical words, logical elements. Examples of groups from testimony structure: *the beauty the ugliness, the good the torn, the good meal the bad meal, the hungry the full; when crying and laughing, the high and the low; resulting victory, front and back foot; I vowed to death, think through, always in prisons, peaceful as always...* The group of *testimony structure* is the group of special value in determining the logical criteria, the logical scale of the antonyms pair. The criterion of interrelationship between antonyms that researchers have often referred to for a long time is, in a certain sense, expressed paragraphically through such *testimony structures*.

### 3. Case Studies

In this section, we do case studies on a few grammar criteria. Specifically, we study about the co-occurrence ability of Vietnamese antonyms in syntactic structures defined in Vietnamese idioms, proverbs and in *Truyen Kieu*.

#### 3.1. The co-occurrence Ability of Antonyms in Idioms, Proverbs

As mentioned above, theoretically, Vietnamese antonyms are capable of functioning in the following grammatical structures: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13. The documents show that pairs of antonyms in Vietnamese idioms, proverbs generally do not appear in grammatical structures 3, 7, 8, 9, but they only appear in grammatical structures 1, 2, 4, 5, 6, 10, 11, 12, 13, and especially appears sharply in the last two grammatical structures 12, 13. It is not difficult to explain about this. Structures 3, 7, 8, 9 are the structures that usually appear only in long, unsuitable speech for using in idioms and proverbs. Structures type 10, 11 are the type of structures that appears in many Vietnamese proverbs; it can be considered as the type of structures that characterizes the Vietnamese proverb. Inside the 1,545 proverbs with antonyms, over 1,000 have this type of structure. Different from structures type 10, 11, structures type 12,13 has a high idiom. This type of structure is a combination for the

using of interwoven and split in Vietnamese. This type of structure can be seen as the type of structure that characterizes Vietnamese idioms, especially for the type of symmetrical metaphor of Vietnamese. Of the 250 idioms that appear in antonyms, 230 are symmetrical metaphorical idioms. Here are some examples illustrated: *one won one lost (một mất một còn); half believe half doubt (nửa tin nửa ngờ); think through (nghĩ tới nghĩ lui), Out of sight out of mind (xa mặt cách lòng) Curses come home to roost (Ác giả ác báo, thiện giả thiện lai), Easy come easy go (dễ đến dễ đi) Sink or swim (được ăn cả, ngã về không), A good beginning makes a good ending (đầu xuôi đuôi lọt) ...*

#### 3.2. The Possibility of Synonyms of Antonyms in the Truyen Kieu

Pairs of antonyms in the *Truyen Kieu* in general do not appear in the first 10 grammatical structure, but in the final grammatical structure  $XaXb, Ax1Bx2$ . Just like the co-occurrence of antonyms in idioms, proverbs, co-occurrence of antonyms in the *Truyen Kieu* also not difficult to explain. The top ten structure are structures that usually appear only in long, complexed spoken words, which often appear only in prose, which are not suitable to use in poetry.  $XaXb, Ax1Bx2$  structures are highly idiomatic. This structure is a combination for the using of interwoven, split mottled Vietnamese. Statistics show that, there are 53 pairs of antonyms of the *Truyện Kiều* appear in this type of structure. This is a figure that shows Nguyen Du is heavily influenced by folklore, especially idioms. For example,

Then in an occasion of their discussion She tried to weigh the pros and the cons with him. (verse 2488) (Nhân khi bàn bạc gần xa, Thừa cơ nàng mới bàn ra nói vào.); A life in exile and death in banishment. She'd be damned till the end of her existence! (verse 2676) (Làm cho sống đoạ thác đầy, Đoạn trường cho hết kiếp này mới thôi!); These reasonable words of hers soothed his ears, They looked at each other through plenty of tears. (verse 684) (Phải lời ông cũng êm tai, Nhìn nhau giọt ngắn giọt dài ngồn ngàng.) Now a chasm has divided him from me, There would be no more gossip or censures. (verse 1878) (Bây giờ một vực một trời, Hết điều khinh trọng hết lời thị phi!); Risking myself even in the flames of war, Defying life and death for our reunion. (verse 2942) (Dấn mình trong áng can qua, Vào sinh ra tử họa là thấy nhau!) (further reference [14]).

### 4. Conclusion

Above we have tried to establish and present a set of criteria that has a formal nature used to identify pairs of antonyms in Vietnamese. When identifying of English antonyms pairs, these criteria must be used simultaneously, they have complementary values for each other. Each group of criteria will reveal certain characteristics of the pairs of antonyms. Pairs of antonyms of a standard one will most fully meet these form criteria. These criteria are divided into logical, phonetic, semantic, grammatical and grammatical groups. Among these criterion groups, the grammar criterion group is considered the most legitimate

and most important form criterion group. Therefore, this grammar criterion group has been mentioned more closely than other criterion groups by two case studies on the co-occurrence of Vietnamese antonyms from the Vietnamese proverbs, folk verses, idioms and *Truyện Kiều*. In the future, we will continue to further study the grammatical criteria from a quantitative computational perspective so that we can, on the one hand, reveal the antonym classification value and the ability to identify and attribute the antonym value of syntactic – lexical structures (two things that traditional linguistics normally study), and, on the other hand, reveal the functional aspect of antonyms in discourse (one that computational linguistics is paying attention to).

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