Figure-Ground Reversal in Negation

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Takafumi OGATA

1. Introduction

Many studies have been conducted to explain negative structures and many approaches have been made to explain the behaviors of negation (Klima 1964, Ladusaw 1980, Linebarger 1987, Horn 1989, Yoshimura 1999, etc.). Allwood, et al. (1977: 30) pointed out "some of the differences between their meaning in ordinary language and in logic." Thus it is necessary to find out the way to give an adequate explanation of negation in ordinary language.

This paper will deal with negation from a viewpoint of category. To put it concretely, it is claimed that negation is a figure-ground reversal of a categorical schema. The semantic interpretation of negation is decided by several factors such as the targets of negation, the viewpoints of figure-ground reversal, and the categories themselves or the members of the categories. The figure and ground of the presupposed source schema are reversed and the original ground is foregrounded in the target schema. The interpretation of negation is given only through this process. The purpose of this paper is to discuss three kinds of negation (sentence negation, constituent negation, and metalinguistic negation) in a consistent way, namely in a category approach.

The paper is organized as follows. Section 2 introduces two kinds of backgrounding processes, internal backgrounding and external backgrounding, developed in Ogata (2006). These two processes are presented through tautological expressions. Section 3 will briefly present an overall picture of negation from a viewpoint of category. The following three sections will deal with three kinds of negation; sentence negation (section 4), constituent negation (section 5), and metalinguistic negation (section 6). Finally in section 7 we will discuss the licensers of the negative polarity items (NPIs).

2. Two kinds of Backgrounding

This section deals with how to grasp categories, including temporary categories. They play a key role in explaining negation because this paper applies a process of figure-ground reversal to category schemas of negative expressions. Tautological expressions are characterized by redefining the categories of their repeated nouns (cf. Ogata 2006). Therefore we shall briefly look into the process of the definition of categories through tautological expressions.

The essence of categorization is grouping from numberless things. In order to make a group, i.e. a category, we have to draw a dividing line between members and nonmembers of the category. Ogata (2006)

claims that a category is (re)defined by backgrounding nonmembers. However, its boundary is not sharp but blurred or fluid, thus the boundary often shrinks or expands depending on the contextual meanings of the sentences. For example, the category *cat* in (1) is redefined by removing non-ratcatcher cats, in other words, by backgrounding non-ratcatcher cats. The category *law* in (2) is redefined by backgrounding categories other than the category *law*. The schemas are shown in (3).

(1)   Cats are cats only if they catch rats.

(2)   The law is the law.

    The process of backgrounding nonmembers is required when a category is given a definition.

(3) a.

   b.
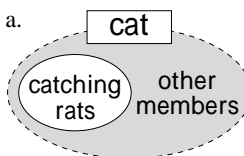
However, the processes of (1) and (2) are different in what are backgrounded. The categories as in (1) are redefined by backgrounding internal original members. Then I call this process *internal backgrounding*. On the other hand the categories as in (2) are given a definition by backgrounding outside of the categories, i.e. other categories. Thus I call this process *external backgrounding*.

3. Negation

3.1 Figure-Ground Reversal

    This paper will try to answer a basic and essential question: what is negation? The answer to this question in this paper is that negation is a figure-ground reversal of a categorical schema. The source category schema undergoes a figure-ground reversal and turns into the target category schema. In the source schema the focus is given to something regarded as actual, positive, or affirmative and in the target schema the opposite or absence of it is foregrounded.

    Givón (1978: 80) pointed out after discussing the contexts of negation that "a felicitous discourse context for the negative is the previous mention of the corresponding affirmative, or alternatively the belief by the speaker that the hearer has heard of the possibility of that corresponding affirmative being true, and in fact has tipped his belief toward the truth of that corresponding affirmative." Givón (1978: 108) further asserted that "negation is only appropriate if the corresponding event   or change in the inert state of the universe   has been made into a ground, while normally it is the figure."

    Therefore in this paper negative expressions presuppose the source schemas, and the target schemas are generated through the process of figure-ground reversal as shown in (4). The schemas are categorical schemas, including temporary categorical schemas.
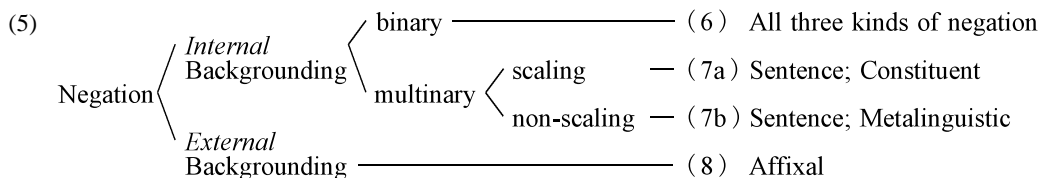
(4) Source Schema   [Figure-Ground Reversal]   Target Schema

However, there are various patterns of figure-ground reversal according to the category types of the schemas. Furthermore, there are many differences among the categories in the targets of negation, the viewpoints of figure-ground reversal, and the categories themselves or the members of the categories. Nevertheless, the
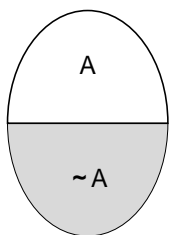
process of backgrounding in defining categories lies at the basis of the various patterns of negation. The concepts of internal backgrounding and external backgrounding fulfil an important role when we deal with negation. In this paper we will discuss three kinds of negation: sentence negation, constituent negation, and metalinguistic negation. All three kinds of negation will be handled in a consistent way through a backgrounding category approach as explained above. Before we discuss the negative expressions, it is useful to examine the source schemas and the category types in the following sections.

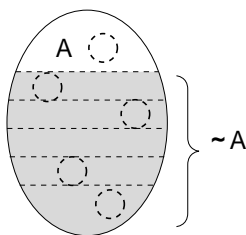### 3.2 Source schemas of the negations

In this section we will consider the source schemas of the negations. The category schemas are broadly classified into an internal backgrounding type and an external backgrounding type as explained in section 2. The internal backgrounding categories are further divided into a binary type which consists of only two members, and a multinary type which is composed of more than two members . The multinary categories are additionally grouped into a scaling type and a non-scaling type based on whether the members of the categories are placed along a specific scale. Finally there is only one external backgrounding category type. This classification is shown in (5) and corresponding schemas are given in (6) - (8).

(5)
　Negation
　　Internal Backgrounding
　　　binary ——————— （6）All three kinds of negation
　　　multinary
　　　　scaling — （7a）Sentence; Constituent
　　　　non-scaling — （7b）Sentence; Metalinguistic
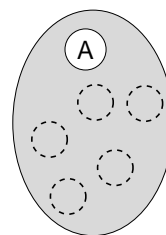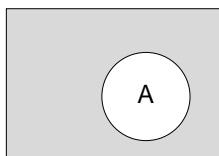　　*External* Backgrounding ——————— （8）Affixal

(6) binary

(7) a. scaling multinary

b. non-scaling multinary

(8) external backgrounding

In negation the binary category is the most typical category and therefore all three kinds of negation take it as a source schema. The scaling multinary category can be a source schema of sentence and constituent negation. The non-scaling multinary category can be used for sentence and metalinguistic negation. Only affixal

negation can take an external backgrounding category as a source schema. These source schemas undergo the figure-ground reversal and turn into the target schemas.

3.3 Three types of negation

Negation is normally divided into three types: sentential negation, constituent negation and metalinguistic negation. Constituent negation is further classified into affixal negation and nonaffixal negation. As a rough approximation, sentence negation is generally assumed to have the whole sentence in its scope as in (9a), while constituent negation has only one constituent in its scope by being adjoined to phrases or bases of words as in (9b, c). Metalinguistic negation is "a device for objecting to a previous utterance on any grounds whatever, including the conventional or conversational implicata it potentially induces, its morphology, its style or register, or its phonetic realization" (Horn 1989: 363). In (9d) the first utterance "The king of France is bald" is denied because its presupposition that there exists a king of France is not satisfied. ((9): Horn 1989: 362)

(9) a. He is *not* happy with his present house.   [sentence negation]

b. She was an *un*bending person.   c. She'd get offended for *no* reason.   [constituent negation]

d. The king of France is not bald   (because) there is *no* king of France.   [metalinguistic negation]

However, we cannot often distinguish these three types of negation simply by looking at their forms. For example, the phrase *no + noun phrase* can be used for a constituent negation as in (10a), and for a sentence negation as in (10b), and for a metalinguistic negation as in (10c).

(10) a. I like persons with *no* principles.

b. He would marry her under *no* circumstances.

c. The king of France is not bald   (because) there is *no* king of France. (= (9d))

Klima (1964) provides the diagnostics on negation, whose tests are whether the negative sentences can be added by *either* tags, *neither* tags, negative appositive tags, and positive confirmatory tag questions. If the negative sentences pass these tests, they are sentential negation. Moreover, he observed that only the fronted adverbs of sentence negation can trigger subject-auxiliary inversion as in (11).

(11) Under no circumstances would he marry her.

However, Klima's analysis has been challenged and it is argued that all the tests are insufficient for deciding crucial cases (Horn 1989, etc.).

In this paper three kinds of negation are dealt with from the standpoint of category. To put it concretely, we will use category schemas based on backgrounding to explain the negative expressions. Although every kind of negation undergoes figure-ground reversal in the process of negation, there are many differences among them, which will be shown in the following section.

3.4 Categories of source schemas

Three types of negation are not easily distinguished from one another by checking the forms of the negations as shown in 3.3. In this paper the distinctions among three kinds of negations mentioned are due to differences in (i) the targets to be negated, (ii) the viewpoints of the figure-ground reversal, (iii) the category types of the schemas, and (iv) the categories or the members of the categories.

First of all, there exist two sorts of targets of negation; *proposition* for sentence negation, and *constituent* for constituent and metalinguistic negation, which appear in the second column *variable: x* in (12). Then there are four types of viewpoints of figure-ground reversal: *truth-value*, *existence*, *antonym*, and *exclusion* in the third column *function* in (12). Sentence negation and metalinguistic negation undergo the figure-ground reversal from a viewpoint of truth-value, but constituent negation undergoes it from other points of view. Next, there are four category types as given in 3.2: internal backgrounding (*binary*, *scaling multinary*, *non-scaling multinary*), and *external backgrounding*. They are found in the fourth column *category type* in (12). Finally, there are differences in categories themselves or the members of the categories, which are in the fifth column in (12). In sentence negation the members of categories are connected to the proposition x ((x) in (12)). The binary type of sentence negation has truth-value members of the proposition x, and the multinary types have the members of the superordinate category of the proposition x. On the other hand, in constituent and metalinguistic negation the members are not related to the proposition but to the constituent itself. The binary type has the existence members of x in constituent negation, and the truth-value members in metalinguistic negation. The multinary types of constituent and metalinguistic negation have the members of the superordinate category of the constituent x. Finally, the category of the external backgrounding type is the constituent x itself.

(12)

|	variable: x	function	category type	category [(x): proposition x]
Sentence Negation	proposition	truth-value	binary	truth-value of (x)
			scaling multinary	superordinate categories of (x)
			non-scaling multinary	superordinate categories of (x)
Constituent Negation	constituent	existence	binary	existence of x
		antonym	scaling multinary	superordinate categories of x
		exclusion	external backgrounding	x
Metalinguistic Negation	constituent	truth-value	binary	truth-value of x
			non-scaling multinary	superordinate categories of x

Sentence negation and constituent negation are quite different except for the category types in the fourth column in (12). Metalinguistic negation has properties in common with sentence negation in terms of the viewpoints of the figure-ground reversal (*function* in the third column) and in common with constituent negation in terms of the targets of the negations (*variable* in the second column). Therefore, metalinguistic negation is located between sentence negation and constituent negation. We will examine more closely these three

negations in sections 4-6.

4. Sentence Negation

4.1 Three types of categories

Sentence negation undergoes a figure-ground reversal in terms of truth-value. Sentence negation has three types of categories: a binary type (13a), a scaling multinary type (13b), and a non-scaling multinary type (13c). The corresponding examples are given in (14).

(13)   a.   b.

c.
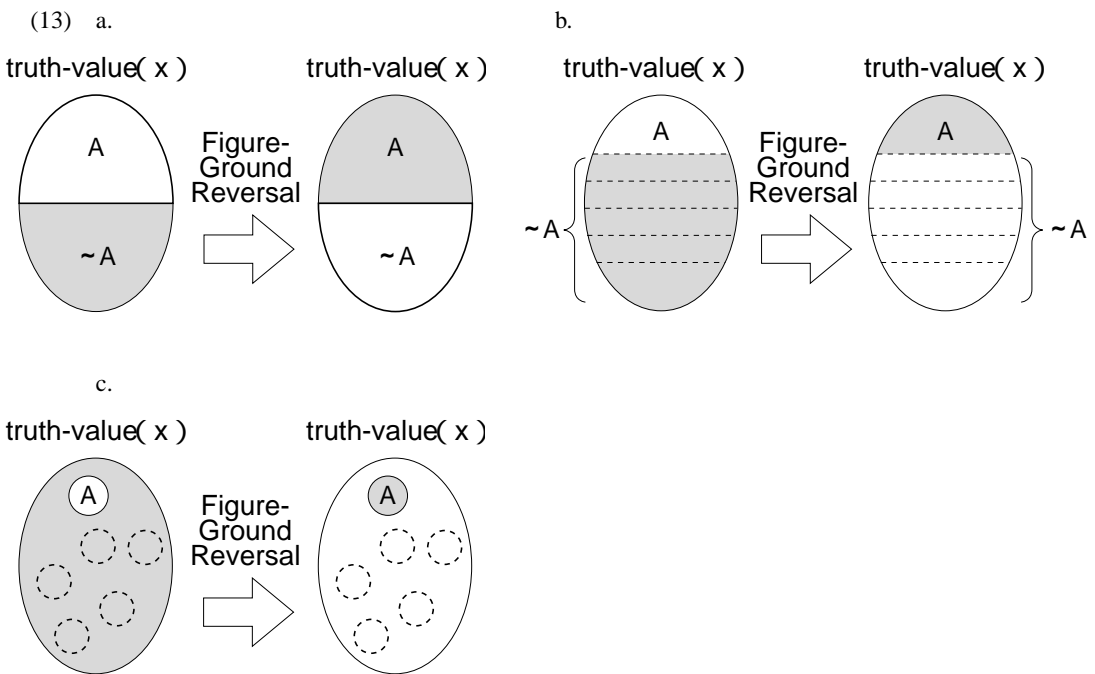
(14)   a. He didn't accept her charity and didn't stay.

b. Many wealthy men are not happy.   c. He was not a civil servant.

The categories of (13a) are a binary category which is composed of two members, the truth and the falsity of the proposition x. The roles of figure and ground are switched in terms of truth-value in the target schemas. Since the truth member is usually set as a default focused member in the source schemas, the falsity member is focused in the target schemas after the figure-ground reversal. Two proposition members are contradictory because both cannot be true and both cannot be false at the same time.

The category of (13b) is a scaling multinary category which consists of more than two members being put under varying degrees. The source schema of this type also obtains a figure ground reversal from a viewpoint of truth-value. The category is a superordinate category of the proposition x. After the simple figure-ground reversal in terms of truth-value, members other than the proposition x are true in the target schema   .

The category of (13c) is a non-scaling multinary category whose members are not placed according to certain kind of degrees. The figure and ground of the source schema are also reversed in terms of truth-value. The category is a superordinate category of the proposition x. The other members with no degrees are focused in the target schema after the simple figure and ground reversal.

In relation to (13c), we will briefly see the negation of *because* clauses here. There are two readings in negation of *because* clauses: a total negation reading and a partial negation reading. ((15) (16): Linebarger 1987: 336)

(15)   He didn't move because he was pushed.

   Ambiguous between readings (16a) *and* (16b).

(16)   a. NOT CAUSE (he was pushed, he moved)

      'His moving wasn't caused by his being pushed .'

   b. CAUSE (he was pushed, NOT [he moved])

      'His not moving was caused by his being pushed .'

For (15), the total negation reading is (16a) and the partial negation reading is (16b). When the reading is total, the category schemas are a binary type (13a). On the other hand, with the partial reading the category schemas are a multinary type ((13c) in the case of (16b)). The difference between a total negation reading and a partial negation reading mainly comes from the difference between a binary category type and a multinary category type. In other words, the readings of negation mainly depend on subjective views toward categories. The expressions with quantifiers behave similarly in readings of negation, thus we shall deal with quantifier negations in the next section.

4.2 Quantifiers

There are also two readings here of negating quantifiers as in *because* clauses: a partial negation reading and a total negation reading. The total negation with quantifiers requires that the categories should be a binary category in (17a) which consists of the truth and the falsity of the proposition x. The figure and ground are reversed in terms of truth-value, and then the default focused member, the truth of x, is backgrounded and the falsity member of x is foregrounded in the target schemas.

In the meantime the categories are a multinary type in the partial negation of quantifiers. Quantifiers are associated with scale positions, thus the categories are a scaling multinary type in quantifier negation as given in (17b). The categories are superordinate categories of the proposition x. There are several propositions with different degrees of quantity of something in the categories. The source schema in (17b) undergoes a simple figure-ground reversal in terms of truth-value and items other than the proposition x are focused in the target schema. The corresponding readings of (18) are given in (19), (19a) for a total reading and (19b) for a partial reading.

(17) a.   b.
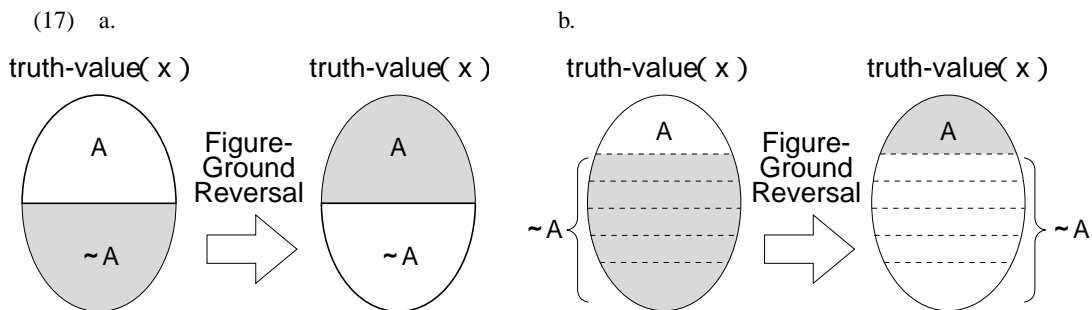
(18) John doesn't think that all the boys will run.

     Ambiguous between readings (19a) *and* (19 b). ((19): See Carden 1973: 19)

(19) a. John thinks that all the boys (won't run). (total negation reading)

     b. John thinks that not all the boys will run. (partial negation reading)

    However, all the expressions with quantifiers do not necessarily exhibit a partial negation reading. As Kaga (1997) pointed out, only the higher limits of the two scales have the partial negation reading. The scales (20) and (21) are drawn from Kaga (1997: 129-130). The proportional quantifier scale (20) presupposes a parent population, and quantifiers express the ratio of the quantity to the population. Milsark (1974) refers to these as *strong quantifiers*. The cardinal quantifier scale (21) does not presuppose a population. Milsark (1974) refers to these as *weak quantifiers* .

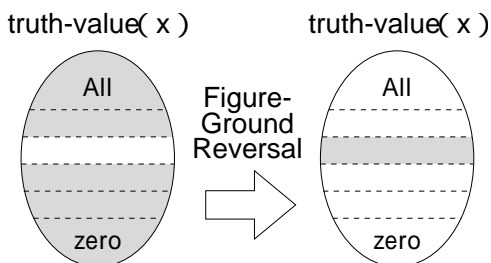(20) proportional quantifier scale
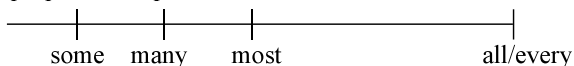
(21) cardinal quantifier scale

(22) a. Most of them are not at all expensive.

   b. Some of them are not even quite aware of it.

(23)

    These phenomena can be easily explained from the categorical point of view, that is, by using a figure-

ground reversal of categorical schemas. (23) is a pair of schemas of negation for quantifiers other than the higher limits of the two scales. After the source schema undergoes a figure-ground reversal, focuses are given to the higher limits, zero, and the other quantifiers except for the specific degree of the quantifier, which is impossible in normal circumstances when the scales are presupposed in the categories. If possible, the degree of a quantifier can be zero, a higher limit and others except for any specific degree, which means ignorance of the scaling in the categories. Thus quantifiers except for the higher limits of the scales cannot have a partial negation reading.

However, we have also the availability of a metalinguistic negation reading with non-higher limit quantifiers of the scales such as (24).

(24)   a. John didn't solve most of the problems; he solved all of them.

   b. You didn't eat some of the cookies; you ate all of them. (Kaga 1997: 106)

(25)
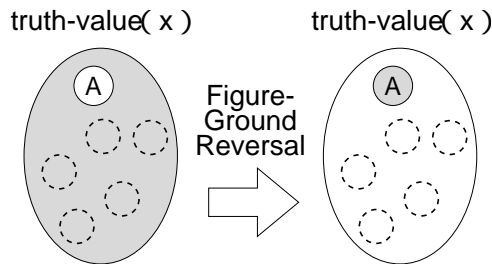
In this case, the category is a non-scaling multinary category in which grades are not established as illustrated in (25). Then the degree members of the category are irrelevant to each other and they are placed randomly in the category. Although the focus shifts to the other degrees rather than the degree of the quantifier in the target schema, including the degrees of zero and the higher limits, (24) is purely grammatical because there is no grade in the schemas and all members are irrelevant to each other. Therefore, the focus can change to all other members than the degree member.

5. Constituent Negation

Constituent negation is classified into affixal and nonaffixal negation. In affixal negation, bases are added by negative affixes such as *un-*, *in-*, *non-*, etc. On the other hand, in nonaffixal negation the word *no* is added to noun constituents, and *not* is added to constituents other than nouns although *no + nouns* and *not + constituents* do not necessarily exhibit a constituent negation reading (See Section 3.3).


5.1 Affixal Negation

Some affixes such as those in (26) have negative meanings. They appear to have various meanings (for

example, non-existence, opposition, reverse, absence, lack, etc.)

(26) a. *negative prefixes*: un-, non-, a-, dis-, in-(im-, il-), anti-, etc .

b. *negative suffix*: -less

In this paper these negative meanings of the affixes come from a figure-ground reversal of two schemas as shown in (27) and (28). Nevertheless, there are some differences between affixal negation and sentential negation. First, source schemas obtain a reversal from a standpoint of others rather than truth-value. Second, targets of affixal negation are not propositions but constituents such as bases of words. Affixal negation has three types of category: two types of internal backgrounding category (27) and one type of external backgrounding category (28).

(27) a.   b.

(28)
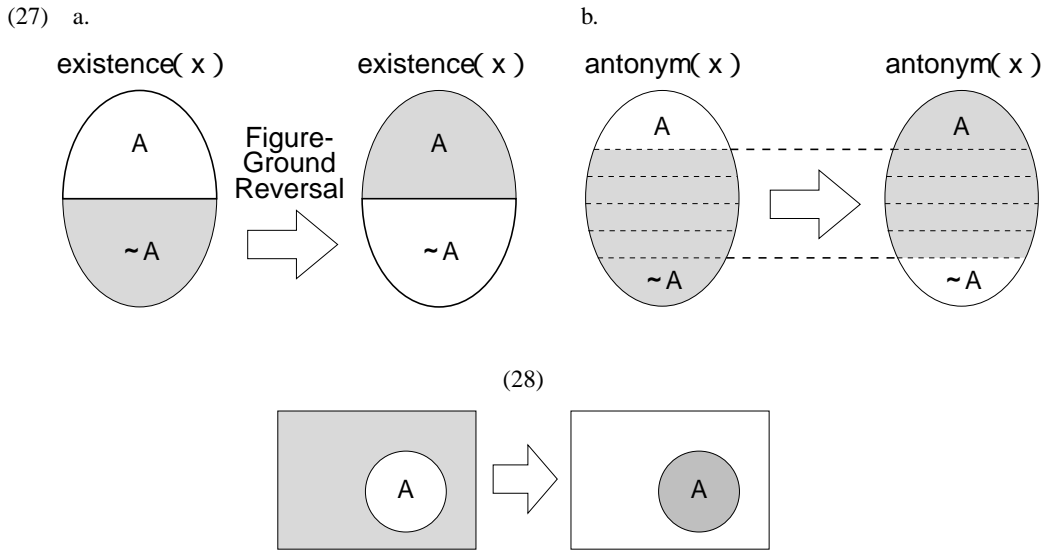
The source schema of (27a) is a binary schema which is composed of only two members, existence and non-existence of X or some property of X. The member "existence of x" is a default focused member. Therefore, when the source schema undergoes a figure-ground reversal from a viewpoint of existence, the member "non-existence of x" is focused in the target schema. The words in (29) represent some examples of (27a).

(29) anarchy, dishonest, disloyal, nondiscrete, unholy, irrational, etc.

Moreover, the source schema of (27b) is a scaling multinary category which consists of more than two graded members. The whole category is a superordinate category of x. However, the way to reverse the figure and ground is different between sentence negation and constituent negation. In constituent negation the figure and ground do not change their role in the center part of the graded category. The figure-ground reversal occurs only at both ends of the category as shown in (27b). The words with negative affixes are antonyms of the bases. Some examples of (27b) are given in (30).

(30) dissatisfied, discomfort, ignoble, insane, unhappy, unkind, etc.

Since (27b) of constituent negation significantly differs from (13b) of sentence negation, the meaning of

(31a) is different from that of (31b). The meaning conveyed by *unhappy* in (31a), taking the pattern of (32a), is 'unfortunate' which is a meaning of the antonym of *happy*. On the other hand, sentence negation *not happy* suggests that he is not in the state of feeling happy, that is, he could be in the state of not unhappy feeling. However, when a category of constituent negation is a binary category, the meaning of the word with an negative affix is the same one of the corresponding sentence negation.

(31) a. He is unhappy.

b. He is not happy.
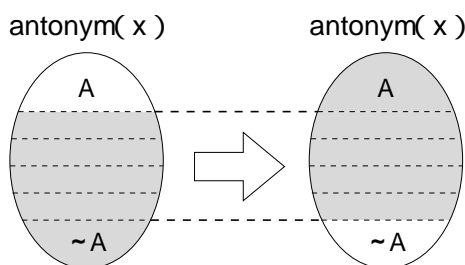
(32) a.   b.
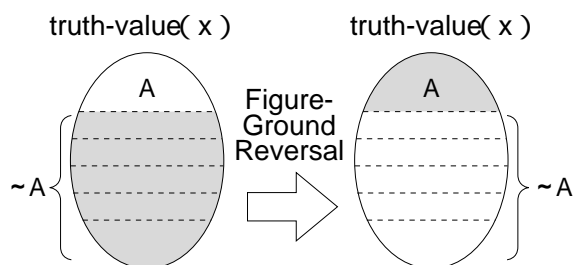
In addition, when there is no bias in the graded property of the bases in the type (27b), the good property of the scale is chosen as the default focused member in the source schemas. Then after the reversal of the figure and ground the bad property is brought into focus in the target schemas. The examples are given in (33).

(33)   nonsentence, imbalance, etc.

Finally, some examples of the external backgrounding (28) are shown in (34). The whole category A is backgrounded and instead other categories are foregrounded after the reversal of the figure and ground, which suggests that others focused on in the target schemas have no relation to category A. Thus the meaning of the negation is "other than category A."

(34)   nonbusinesslike, unmoral, etc.

Furthermore, in affixal negation there is a tendency for categories to take a certain kind of category type based on the degree of boundedness between affixes and bases. The more strongly they are bound, the more complicated the category type becomes. As shown in (35), the simplest category is an external backgrounding category in which the members are invisible, and the most complicated category is a multinary category type whose members are placed according to a specific degree, and a binary category is located between the two sides. Thus Class II affixes tend to take an external backgrounding category and a binary category, and Class I affixes are inclined to take a binary category and a multinary category. Nevertheless, there do not exist clearly defined boundaries between them. This is just a tendency of affixal negation which is illustrated in (36) with some typical negative prefixes *non-*, *un-*, and *in-* whose examples are given in (37) - (39).

(35)   external backgrounding category (28)   binary category (27a)   multinary category (27b)

(36)

Class $\longleftrightarrow$ Class		
external backgrounding category multinary category		
b i n a r y c a t e g o r y		
non-	un-	in-

(37)   a. nonhuman, nonbusinesslike, etc.   [external backgrounding]

      b. nonsense, nongrammatical, nondistinctive, nonactive, etc.   [binary]

(38)   a. unmoral, etc.   [external backgrounding]

      b. unconscious, unbalance, unlikely, unfair, unalike, etc.   [binary]

      c. unhappy, unlucky, unattractive, etc.   [multinary]

(39)   a. illogical, immature, insecure, invisible, impassable, etc.   [binary]

      b. infamous, insane, incompetent, inappropriate, etc.   [multinary]

5.2 Nonaffixal negation

In nonaffixal negation the word *no* is added to nouns and *not* is attached to others rather than nouns. This negation has two category types: a binary type and a scaling multinary type as given in (40), but not an external backgrounding type. The figure-ground relationships are also reversed in these category types in the same way as affixal negation. The corresponding examples of (40) are given in (41) and (42).

(40)   a.   b.
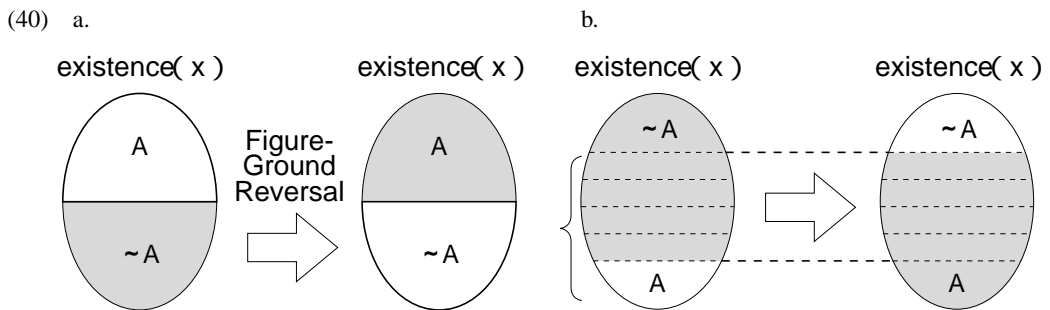
(41)   a. She continued to dine with *no* hope at all.

      b. *Not* surprisingly, some of them became a bit confused.

(42)   a. I have visited *not* a few places abroad.   James Joyce, *Dubliners*.

   b. And here I had *not* a little hope of useful discoveries.   H G Wells, *The Time Machine*.

The category in (40a) consists of two members, existence and nonexistence of some property of x or the constituent x itself. In the source schema, the existence member is focused on because it is usually a default focused member. Then the figure-ground alignment is reversed in terms of existence, and the non-existence member is focused on in the target schema, which means there does not exist some property of x or x itself.

On the other hand the categories in (40b) are a scaling multinary type in which the members are graded on a scale of some property. The whole category is a superordinate category of x. As in affixal negation, the

figure-ground reversal occurs only at the both ends of the category as given in (40b). The constituents with *no* or *not* are an antonym of the original ones.

6. Metalinguistic negation

Metalinguistic negation lies between sentence negation and constituent negation. Sentence and metalinguistic negation are the same in their viewpoints of the figure-ground reversal: truth-value. Constituent and metalinguistic negation are the same in their targets to be negated: constituent. Therefore, metalinguistic negation has some features in common with sentence and constituent negation, which suggests that metalinguistic negation occupies an intermediate position between the other two negations.

(43)   a.   b.
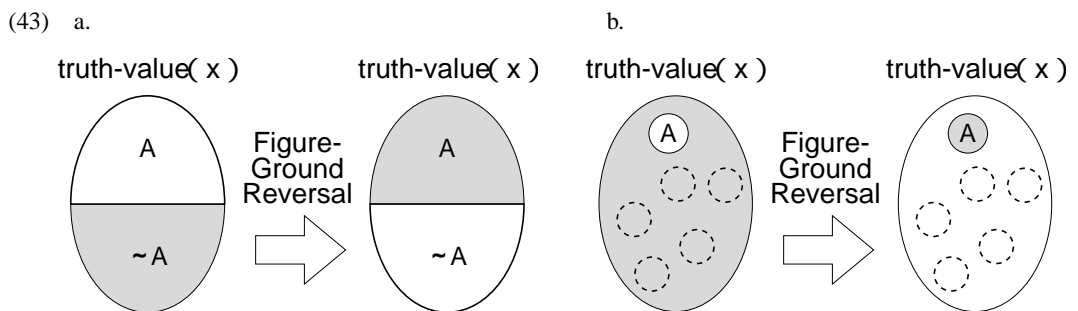
However, the process of the figure-ground reversal covers not only sentence and constituent negation, but also metalinguistic negation. Metalinguistic negation has two kinds of figure-ground reversal based on category types . The binary categories in (43a) consist of two members, existence and non-existence of the constituent x or the property of the constituent x. The categories undergo the figure-ground reversal from the viewpoint of truth value. The default focused member is an existence of x, thus after the reversal the non-existence member is foregrounded in the target sources.

In (43b) the category is a nonscaling multinary category, and it also takes the figure-ground reversal of the constituent x in the light of truth value. The category is a superordinate category of the constituent x. The focus is shifted to other constituents rather than x and they become true in the target schema. The examples are given in (44) and (45). ((44) (45): (Horn 1989: 371-2,384))

(44)   a. The king of France is not bald   (because) there is no king of France.

b. For a pessimist like you, the glass isn't half full   it's half empty.

(45)   a. Max doesn't have *three* children   he has *four*.

b. You didn't eat *some* of the cookies, you ate *all* of them.

7. Licensers of negative polarity items (NPIs)

Negative polarity items (NPIs) as in (46) are used in negative clauses including overt and covert negative contexts.

(46)　any; ever, at all, in years, yet, much; a (single) bit; anything, anybody, a red cent; half bad; bat an eyelash, bother to; dare; until, etc.

However, NPIs are also licensed in negative-polarity environments such as adversative predicates, universal quantifiers, comparatives, prepositions (*against, without*), questions, *before*-clauses, *if*-clauses, relative clauses headed by a universal quantifier, noun phrases with determiners (such as *few*, *no*, *at most n*,...), *too...to* constructions, etc. (cf. Linebarger 1987: 328-9, Yoshimura 1999:10-13, etc.)

What is common among these licensers for these NPIs? Since negation is a figure-ground reversal of a categorical schema, we predict that other negative-polarity environments also require the figure and ground reversal of the presupposed source schemas. For example, in interrogative, conditional and comparative clauses, the source schemas obtain the figure and ground reversal in terms of truth-value. The category of the schemas is a binary category which consists of two members: factuality and non-factuality of the proposition x(cf. Downing and Locke 2006: 24). The factuality member is focused on in the source schema and the non-factuality member is foregrounded in the target schema after the figure and ground reversal. In the following sections, we will deal with some of the licensers, *few*/*little* and *barely,* although all the licenser are not discussed in this paper　.

(47)　a. Have you *ever* been to Japan?　　b. If you've *ever* been there, you'll have noticed it.

　　c. The pills make her feel better than she's *ever* felt before.

(48)
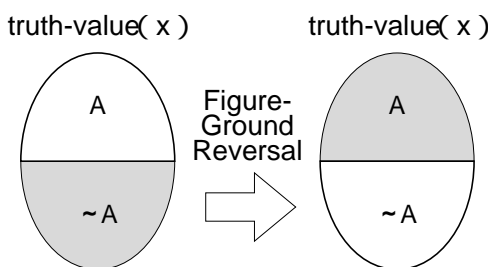
7.1 Few/Little

A few and *few* have different meanings: *a few* simply indicates a small number of people or things, whereas *few* emphasizes that there are only a small number of people or things, although both may refer to the same number of something. *A little* and *little*, used only with mass nouns, have a similar relation to the pair: *a few* and *few*. These differences are not predictable from the presence or absence of the indefinite article *a*.

They have different emphases, i.e. they have different patterns of figure and ground in their schemas. The schemas of (49b) and (50b) are shown in (51).

(49) a. You have to make *a few* phone calls.

　　　b. There are *few* questions on the schedules.

(50) a. Put *a little* water into the stew pan.

　　　b. There was *little* food in the refrigerator.

(51) a.　　　　　　　　　　　　　　　　　　　　b.
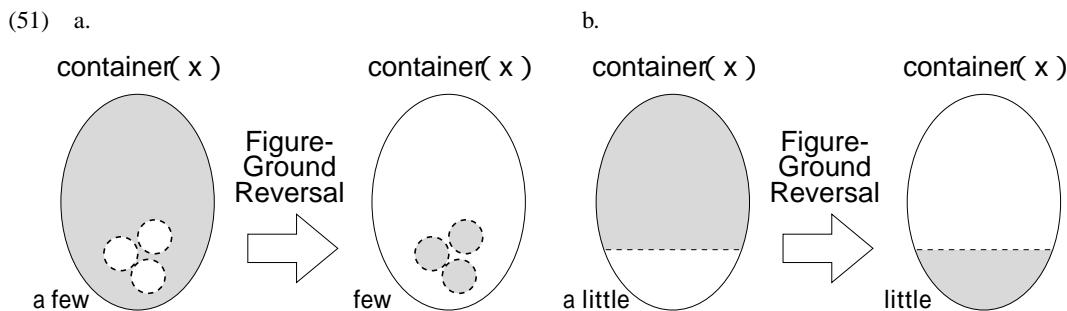
The categories of *a few/few* and *a little/little* are a certain kind of container which contains a few of x or a little of x. Taking the lack of the article *a* as a cue, the source schemas of *a few* and *a little* undergo a figure and ground reversal, and nonexistent parts of the containers of x are foregrounded in the target schemas. Furthermore, since the foci are given to the nonexistent parts in the target schemas, the focus area of the parts can be expanded subjectively to the whole categories as in (52). ((52): Kuno and Takami 2007: 156)

(52) a. He has little money　　in fact, he has no money.

　　　b. He has few friends　　in fact, he doesn't have any friends.
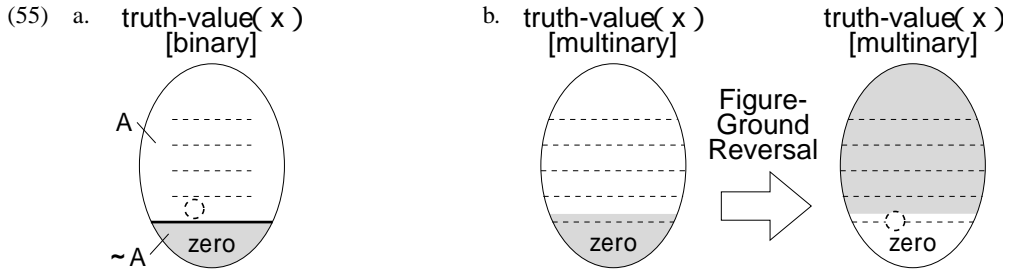

7.2 Barely

　　There are two kinds of *barely*: the one with a positive meaning (henceforth, positive *barely*) and the other with a negative meaning (henceforth, negative *barely*). Negative *barely* can occur with a negative polarity item *any* and cannot apply the VP-Deletion rule to the clauses with negative *barely*, while the opposite holds true for the clauses with positive *barely*.

(53)　a. Their team barely won the game.　b. They barely passed the exam.　　　[positive *barely*]

(54)　a. She can barely hear any accents.　b. He had barely tasted them.　　　[negative *barely*]

　　The differences in meaning between *a few* and *few* or *a little* and *little*, as shown in 7.1, can be found in the single form *barely*. Negative *barely* undergoes the figure and ground reversal, while positive *barely* does not. The difference in meaning of two kinds of *barely* comes from the differences of the category types. The category of the positive *barely* is a binary category whose members are the truth and the falsity of the proposition x. In other words, the positive *barely* requires clarification as to whether the proposition x belongs to the truth member or not. The truth member is a subcategory which consists of various degree members on the

scale of membership of the category and degree of x with a positive *barely* located in the lowest level of the scale . This subcategory is a scaling multinary type. The whole binary schema is given in (55a).

(55) a. truth-value x
      [binary]
      A   zero

b. truth-value x   truth-value x
   [multinary]   [multinary]
                 Figure-
                 Ground
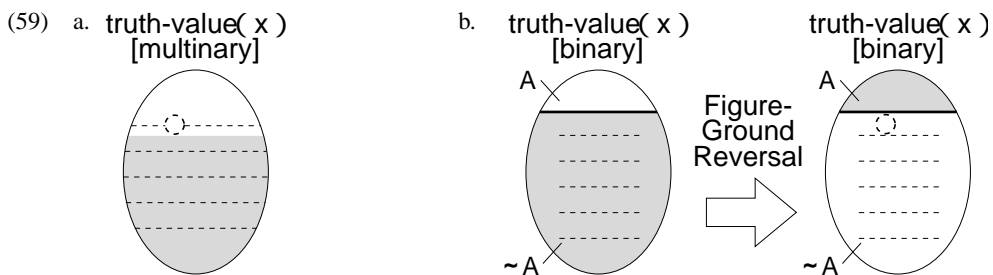   Reversal
   zero   zero

On the other hand, the category of negative *barely* is not a binary type but a scaling multinary type as in (55b). Zero and the lowest degree of the scale, i.e. the degree of x, are considered to form a group subjectively. Thus they are backgrounded in the source schema and after the figure-ground reversal they are foregrounded in the target schema. In fact, we can turn the partial denial in the first clause into a full denial by adding the second clause as in (56). Subjectively the boundary between zero and the lowest degree becomes extremely vague unlike the boundary between them in a binary category.

(56) I can barely hear him   in fact I can't hear him.

A similar explanation applies for the sentences with *almost*. There are also two types in the sentences with *almost*: one keeps the focus on the truth of the proposition x, and the other turns the focus to the falsity of the proposition x. In (57) the truth member of the category is foregrounded, while in (58) the falsity member of the category is foregrounded, as shown in (59).

(57) a. *Almost* all crimes were solved.

      b. They are *almost* as clear as crystal.

(58) a. He *almost* missed the interview.

      b. She *almost* persuaded him to go.

(59) a. truth-value x
      [multinary]

b. truth-value x   truth-value x
   [binary]   [binary]
   A   A
                 Figure-
                 Ground
                 Reversal
   A   A

The category of (59a) is a scaling multinary category whose boundary line between the highest and almost the highest degree appears somewhat blurred or indistinct. They are often subjectively grouped together. On the other hand, the category of (59b) is a binary category which is composed of the highest member (i.e. the truth of x) and a subcategory of various other degree members (i.e. the falsity of x). The subcategory is a

scaling multinary category type, and the degree of *almost* is located at its highest level. After the figure and ground reversal, the subcategory is foregrounded in the target schemas.

8. Summary

This paper has attempted to provide a broad overview of negation from the point of view of category. It is claimed that negation is a figure-ground reversal of a categorical schema. Negation presupposes the source schemas and requires the process of the figure and ground reversal of the source schemas. Differences among three kinds of negation mainly come from several factors such as (i) the targets to be negated, (ii) the viewpoint of the figure-ground reversal, (iii) the category types of the schemas, and (iv) the categories or the members of the categories. We can handle these three kinds of negation in a consistent way only from the categorical point of view.

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Notes

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I am grateful to Colin Painter for extensive stylistic suggestions. The responsibility for any remaining inadequacies is, of course, my own.

1. Generally speaking, a contradictory meaning corresponds to a binary schema, and a contrary meaning is compatible with a multinary schema.
2. The expression of "simple" figure-ground reversal implies that there is another way of figure-ground reversal which we will see in affixal negation in 5.1.
3. Japanese quantifiers are left out from the original tables of (20) and (21).
4. The similar meaning affixes such as *mal-*, *mis-*, *ob-*, *contra-*, *counter-*, *de-*, etc. seem to be accounted for by a figure-ground reversal of negation.
5. Metalinguistic negation cannot be expressed by negative affixes like *un-*, *non-*, or *in-*. (cf. Horn 1985: 140)
6. There are a variety of combinations of negative polarity items and negative-polarity contexts according to the hierarchy of negative expressions such as *weak* or *strong*.
7. *Barely* is generally analyzed as having two entailments of meaning, a proximal component and a polar one (Sevi 1998).

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References

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Allwood, J., Anderson, LG, and Dahl, O. 1977. *Logic in Linguistics*. Cambridge, England: Cambridge University Press.

Carden, G. 1973. *English Quantifiers: Logical Structure and Linguistic Variation*. New York: Academic Press.

Downing, A. and P. Locke. 2006. *English Grammar: A University Course*. 2nd ed. Oxon: Routledge.

Givón, T. 1978. "Negation in Language: Pragmatics, function, ontology," in *Syntax and Semantics 9, Pragmatics*, P. Cole (ed.). New York: Academic Press., pp. 69-112.

Horn, L. R. 1985. "Metalinguistic Negation and Pragmatic Ambiguity." *Language* 61: 121-74.

_____ 1989. *A Natural History of Negation.* Chicago: University of Chicago Press.

Kaga, Nobuhiro. 1997. "Suuryoshi to bubunhitei (Quantifiers and Partial Negation)," in Minoru Nakau, editor, *Shiji to Shoo to Hitei* (*Reference, Anaphora, Negation*), Nichieigohikakusensho 4. Tokyo: Kenkyusha., pp. 91-184.

Klima, E.S. 1964. "Negation in English," *The Structure of Language.* J. Fodor and J. Katz (eds.). Englewood Cliffs, New Jersey: Prentice-Hall., pp. 246-323.

Kuno, S. and Takami K. 2007. *Nazotoki no Eibumpou   Hitei (English Grammar to Solve Mysteries   Negation).* Tokyo: Kurosio.

Ladusaw, W.A. 1980. "On the Notion *Affective* and the Analysis of Negative Polarity Items," *Journal of Linguistic Research* 1: 1-16.

Linebarger, M. 1987. "Negative polarity and grammatical representation," *Linguistics and Philosophy* 10: 4, pp. 325-387.

Milsark, G.L. 1974. Existential Sentences in English. Ph.D. dissertation, MIT, Cambridge, Mass.

Ogata, T. 2006. "Tautologies: Emphasis through Grounding," *Journal of Chikushi Jogakuen University and Junior College*, Vol.1, pp. 31-47.

Sevi, Aldo. 1998. A semantics for *almost* and *barely*. M.A. thesis, Tel Aviv U.

Yoshimura, Akiko. 1999. *Hitei Kyokusei Gensho* (*Negative Polarity Phenomena*). Tokyo: Eihosha.