A Construction Grammar Approach to Noun Modification by Adjectives in English and Japanese

A Dissertation
Submitted to the University of Tsukuba
in Partial Fulfillment of the Requirements for the Degree of
Doctor of Philosophy in Linguistics

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2020

Acknowledgements

First and foremost, I would like to express my sincere gratitude to my supervisor Yukio Hirose not only for his expert advice and encouragement throughout this study but also for his scrupulous check of my logic and English writing. Since I entered the University of Tsukuba, he has always understood my interests in English linguistics and motivated me to tackle the present topic, noun modification by adjectives, from a cognitive semantic point of view. Moreover, as my teacher and mentor, he has shown me what a good scientist should be.

I am also grateful to the other members of my dissertation committee, Nobuhiro Kaga, Masaharu Shimada, Naoaki Wada, and Toshiaki Oya. Each teacher has provided me extensive professional advice and thought-provoking comments. They have also taught me a great deal about both scientific research and linguistic analysis. I am particularly and extremely grateful to Masaharu Shimada and Naoaki Wada. Masaharu Shimada has kindly taught me how to look at language theoretically and what theoretical linguistics is. Naoaki Wada has discussed with me a lot of interesting topics in cognitive linguistics. He has also carefully read an earlier version of my dissertation and given me numerous invaluable suggestions.

My thanks also go to the other faculty members, Masaru Kanetani, Yuichi Ono, and Shuto Yamamura. Discussions with them have helped me to develop my own ideas and deepen my understanding of various kinds of linguistic topics.

I would also like to extend my deepest gratitude to Akiko Nagano, who has enthusiastically motivated me to embark upon adjectival modification and its related phenomena. All her practical and insightful suggestions have greatly influenced this study.

I am further indebted to Satoru Kobayakawa, Mai Osawa, Yusuke Kubota, Robert Levine, Jesús Fernández Domínguez, Bert Cappelle, and Jun-ya Watanabe. Discussions with them have been illuminating to this dissertation in many ways.

I have also greatly benefited from the members of the Lexicon Study Circle (LSC), with whom I have enjoyed discussions about many kinds of morphological topics.

I have received generous support from Midori Matsutani, who was a supervisor of my bachelor thesis, submitted to Yamaguchi University. Her profound belief in my abilities has motivated me to go on to a Master's course at the University of Nottingham and further to a Doctoral programme at the University of Tsukuba. Without her heartfelt encouragement, it would not have been possible to continue my study and complete my doctoral dissertation here.

My special thanks also go to the following people, who have studied with me at Tsukuba: Ryohei Naya, Shotaro Namiki, Masatoshi Honda, Yoji Igarashi, Yuri Togano, and Nana Odagiri. I particularly owe a very important debt to Ryohei Naya, who has always given me constructive comments and warmly supported throughout my entire life in Tsukuba. Without his persistent help and professional guidance in morphology, this thesis would not have been possible.

I thank David Gregory Asher and George Thomas Rogers, who have kindly acted as my informants.

I have fortunately benefited from the financial support from Japan Society for the Promotion of Science (JSPS) for the last two years. Most parts of this thesis were supported by the Grant-in-Aid for JSPS (Research Fellow) KAKENHI Grant Number 19J10598.

Lastly, my deepest gratitude goes to my grandmother Kazuko Shimizu, my parents Masami Ishida and Tamae Ishida, and my two elder brothers Kazunori Ishida and Naoteru Ishida, for their constant and unparalleled encouragement. I would like to dedicate this thesis to the memory of my grandfather Yoshio Shimizu, who passed away in September 2020.

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Tsukuba

December 2020

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List of Abbreviations

A	adjective
ACC	accusative
AP	Adjective Phrase
AN	adjectival noun
BNMP	Base Noun Modifiability Property
CEN	complex event nominal
CL	classifier
CN	Complex Nominal
CMT	Conceptual Metaphor Theory
CRC	Contrastive Remnant Condition
DA	denominal adjective
DAT	dative
DN	deverbal nominal
DESID	desiderative
DET	determiner
GEN	genitive
GMH	Givenness-Marking Hypothesis
I	non-past conjugative ending for Japanese -*i* adjectives
KU	conjunctive form in Japanese
LF	long form
LIP	Lexical Integrity Principle
MASC	masculine
N	noun

NA	non-past conjugative ending for Japanese *-na* adjectives
NC	neoclassical compound
NEG	negative
NMLZ	nominalizer
NOM	nominative
NONPAST	non-past
NP	Noun Phrase
NPA	non-predicating adjective
PASS	passive
PL	plural
POSS	possessive
PP	Preposition Phrase
P-RA	prefixed relational adjective
PRED	predicate
PRES	present
PROP	property-denoting
PROPR	proprietive
QA	qualitative adjective
RA	relational adjective
RCR	Relative Clause Reduction
RDP	Recoverably Deletable Predicate
RN	result nominal
SF	short form
SG	singular
SUBC	subcategorising

TOP	topic
VP	Verb Phrase
WFR	Word Formation Rule

Chapter 1

Introduction

1.1. Introduction: Linguistic Sign and Construction Grammar

A linguistic sign consists of the arbitrary and conventional pairing of form and meaning. This has been one of the central concepts of modern linguistics since de Saussure proposed the notion of *signifiant* (i.e. form / sound pattern) and *signifié* (i.e. meaning / mental concept) (de Saussure [1916] (1974: 65–70)). Construction Grammar has its origins in the Saussurean notion of the linguistic sign. The followers of de Saussure have extended and developed this idea and regarded it as being useful for describing not only words or morphemes but also all levels of grammatical components and units (Hoffmann and Trousdale (2013)). This extended notion of the Saussurean sign has become known as 'construction'.

Since then, however, there have been various kinds of approaches in the theory of Construction Grammar. For example, there are two distinct ideas for capturing the content of constructions. On the one hand, some constructionists regard all syntactic forms as meaningful constructions (e.g. Goldberg (1995, particularly 2006, 2013), Croft (2001, 2013), Boas (2003, 2008, 2010a, b), Michaelis (2013), Broccias (2013)). In this view, since all linguistic units are form-meaning pairings, there are no independent syntactic principles and semantic implications; "all linguistic units are taken to be full Saussurean signs" (Jackendoff (2013: 79)). On the other hand, others take constructions as one kind of "abstract stored structure" (Jackendoff (2013: 79)) (e.g. Lakoff (1987), Fillmore (1988), Fillmore and Kay (1997), Kay and Fillmore (1999), Kay (2013), and Jackendoff (2013)).[1] Therefore, it is quite

[1] In fact, Boas (2008, 2010a, b) and Iwata (2008) point out that the recent constructional accounts have 'implicitly' assumed a separation of syntax and the lexicon. Boas (2010a), in particular, strongly argues for the need of non-separation analysis, i.e. the syntax-lexicon continuum in Construction Grammar. My understanding of Construction Grammar here follows from what other previous studies have claimed so far and particularly from what Jackendoff (2013) contends.

natural for them to presume that the grammar of a language contains independent principles of syntactic forms as well as autonomous semantic structures which are not affected by syntax (Jackendoff (2013: §5.4)).

Jackendoff (2013: 78–79) calls the former *homogeneous* Construction Grammar and the latter *heterogeneous* Construction Grammar. Let us consider how these two distinct approaches differ from each other, clarifying that a heterogeneous approach, on which this dissertation is mainly based, is much preferrable to a homogeneous one.

First, in the English Transitive Verb Construction, for example, the choice of verb affects the semantic role of the postverbal NP (e.g. a theme, a goal, an experiencer, a stimulus, and so on). Goldberg (2013) explains that the general meaning of the construction expresses 'predication'. In a homogeneous Construction Grammar approach, as argued by Jackendoff (2013), each particular semantic role for the grammatical direct object may be determined by each distinct subconstruction (i.e. Predicate-Theme construction, Predicate-Goal construction, and so on).

A homogeneous approach, however, would exclude the following relevant transitive verb constructions, in which the direct object is not straightforwardly an argument of the verb. First, it would exclude many idiomatic transitive VPs such as those in (1), whose direct object does not retain its literal meaning at all.

(1) a. kick the bucket 'to die' (cf. Jackendoff (2013: 80))
b. bite (off) one's tongue 'to hold back a remark one would like to make'
c. blow one's cool 'to lose one's composure'
d. bleed (someone) white 'to deprive slowly of resources'

Second, it would exclude the *Way* construction as in (2a) and the Time-*away* construction as in

(2b), where the verb expresses a certain manner or means.

(2) a. Bob drank his way through the whole meeting.

b. Bob drank the afternoon away.

(Jackendoff (2013: 80))

Third, it would exclude reflexive verbs such as those in (3), in which the reflexive is merely a syntactic argument but not a semantic argument.

(3) a. Dick {perjured / asserted} himself.

b. Sue availed herself of the opportunity.

(Jackendoff (2013: 80))

Fourth, it would exclude object-raising verbs such as *believe* and *expect*, as in (4). This kind of verb can have grammatical objects that have semantic roles with respect to a subordinate verb as in (4a), or no semantic role as in (4b).

(4) a. Bob believes the shit to have hit the fan.

b. Bob expects it to rain.

(Jackendoff (2013: 80))

Fifth, it would exclude Light Verb constructions such as those in (5), where the syntactic direct objects express the very semantic content of the predicate.

(5) a. Bill took {a walk / a shower / a nap}.

b. Sue made {a decision / a vow}.

c. Fred put the blame on Bill for the accident.

d. Amy gave Tom {a kiss on the ear / a punch in the arm}.

(Jackendoff (2013: 80))

Therefore, since a homogeneous approach would exclude numerous kinds of transitive verb constructions due to their semantic heterogeneity and must "treat it as an accident that these all display the same syntax" (Jackendoff (2013: 80)), it does not seem satisfactory enough to say that the general meaning of the English Transitive Verb construction is still 'predication'.

As vigorously argued by Jackendoff (2013: 80), it is only a heterogeneous Construction Grammar that can offer a better solution for this. This approach sets a 'form-only' construction (i.e. [$_{VP}$ V NP]) at the top of inheritance hierarchy, independent of semantics. The Predication construction and other constructions such as those in (1) to (5) can only inherit their 'forms' from this syntactic configuration, while differing in their 'meanings'.

A similar situation can be observed in English Verb-Particle constructions such as those in (6), in which each expression shows a different interpretation in spite of the same syntactic representation.

(6) a. John pushed Bill {in / out / through / into} the hole.

b. John looked the answer up. John freaked Bill out.

c. John ate the sandwich up. John read the book through. The band played on.

d. We're twistin' the night away. (= We're spending the night twistin')

e. John sand his heart out. John programmed his butt off.

(cf. Jackendoff (2013: 81))

The particles in (6a) function as directional (path) arguments of the verb. Those in (6b) form idiomatic expressions with the verbs. The particles in (6c) express aspect. The example in (6d) is the Time-*away* construction, in which the verb is semantically subordinate (i.e. the NP *the night* is an argument of the construction but not an argument of the verb *twistin'*). The particles in (6e) form idiomatic expressions with the NPs (i.e. the NPs and particles function as degree adverbials). Due to the semantic heterogeneity, it seems quite difficult to combine different combinations of elements that form the relevant construction under a general form-meaning pairing. Thus, a homogeneous Construction Grammar approach must treat all the expressions in (6) as independent constructions respectively that happen to the same form (i.e. [$_{VP}$ V-NP-Particle]).

By contrast, a heterogeneous Construction Grammar can say that the English Verb-Particle construction has certain syntactic patterns. In this case, for example, a particle occurs either before or after the direct object, but it must occur *after* a pronominal object and *before* full PPs (Jackendoff (2013: 81)). This syntactic structure can then be used to express five independent meanings as in (6a) to (6e). Jackendoff (2013: 81) says that the most 'basic' meaning of the construction here can be (6a), because the particles are genuine arguments of the verb and are transparently related to directional prepositions. The different meanings of the construction inherit from a common node of the pure syntactic structure (i.e. [$_{VP}$ V-NP-Particle]). It is only this node that each construction with a different meaning in (6) has in common. Jackendoff (2013: 81) further states that this syntactic structure "inherits properties from the more abstract item [$_{VP}$ V …], which expresses the purely syntactic fact that English has a syntactic category VP that is verb-initial".

The examples observed so far are instances of the mapping relation between one syntactic form and multiple unrelated meanings (i.e. one-to-many mapping). Let us next consider one of the typical examples in which the mapping relation between syntax and semantics is multiple

(i.e. many-to-many), as given in Table 1.1.

Table 1.1. The comparison of *N of NP*, *NP's N*, and *N-N compound*

	N of NP	*NP's N*	*N-N compound*
Part	leg of a chair	the chair's leg	chair leg
Unit	grain of rice	*rice's grain	rice grain
Aggregation	pile of sand	*sand's pile	sand pile
Agent	attack of the zombies	the zombies' attack	zombie attack

(Jackendoff (2013: 82))

As illustrated in Table 1.1, the same semantic relations can be represented by either form, *N of NP*, *NP's N*, or *N-N compound*. From a homogeneous point of view, we are required to say that English has ten different constructions (i.e. except for the ungrammatical examples) that "happen to relate the same four semantic relations to the same three syntactic structures" (Jackendoff (2013: 82)). In contrast, from a heterogeneous point of view, we can say that our lexicon includes three autonomous syntactic schemas and four autonomous semantic schemas. Each specific construction thus inherits its form from a certain syntactic schema and its function from a certain semantic schema. The four examples and their corresponding forms in Table 1.1 show the multiple inheritance structure of the relevant constructions. In this sense, form and meaning are inherently separated from each other and then reciprocally connected as pairings (i.e. constructions) in the grammar.

One might argue that the form *N of NP* in Table 1.1 has a common semantic principle in that the N is a semantic head and the complement *of*-phrase is either argument or modifier. However, there are other cases in which the semantic relation between them is reversed such as those in (7).

(7) a. that scoundrel of a doctor ‘that doctor, who is a scoundrel’

b. that travesty of a theory ‘that theory, which is a travesty’

c. a gem of plumber ‘a plumber who is a gem’

(Jackendoff (2013: 82))

In these cases, the complement *of*-phrase is the semantic head and the syntactic head plays the role of a semantic modifier (Jackendoff (2013), Asaka (2002), Booij (2002)). Since the form *N of NP* is so common and productive in English that such a specific syntactic form has become a formally autonomous construction. But a homogeneous approach cannot say so, because the semantics of these examples is completely different from that of examples in Table 1.1. By contrast, a heterogeneous approach can regard such examples as semantically alternative forms of the *N of NP* construction.

Moreover, from a productivity point of view, Kay (2013) takes up the A *as* NP construction and argues that the construction should not be regarded as a true ‘construction’, but just as a ‘pattern of coining’ because of its unproductivity.[2] If the specific pattern (i.e. A *as* NP) can be regarded as a ‘true’ construction, many kinds of lexical items can be inputs and it should show the same grammatical behaviour, but it is not. Let us first assume that the A *as* NP pattern can be characterised by the formula in (8).

(8) A *as* NP [interpretation: ‘very A’] (Kay (2013: 38))

However, this formula cannot be freely used to coin new expressions. For example, while (9a) is a fixed collocation, (9b) is not simple in prosaic English (though it is understandable).

[2] Regarding the distinction between ‘constructions’ and ‘patterns of coining’, see the discussion in Fillmore and Kay (1997), Fillmore, Kay, and O’Connor (1988), and Jackendoff (2013) (cf. Hilpert (2019)).

(9) a. What a healthy baby, strong as a horse!

b. What a healthy baby, heavy as a truck!

(Kay (2013: 38))

Let us then observe the following examples, in which some of them (i.e. (10a–c)) can be expressed by a *than*-phrase, while others (i.e. (10d–f)) cannot.

(10) a. dead as a doornail; deader than a doornail

b. hot as hell; hotter than Hell

c. flat as a pancake; flatter than a pancake

d. happy as a lark; *happier than a lark

e. easy as pie; *easier than pie

f. dry as a bone; *drier than a bone

(cf. Kay (2013: 37–39))

Even though the A *as* NP pattern in (10) can be characterised by (8), some of them show different grammatical behaviour. On this basis, Kay (2013: 39) concludes that although there are numerous A *as* NP collocations, this pattern is not productive and argues that the A *as* NP pattern with the meaning 'very A' "has seemingly provided a fecund source of analogy for coining new English collocations, but it is not a construction of English grammar". Similarly, Fillmore and Kay (1997) state that "[w]e can distinguish two kinds of 'creativity' in language. In one case there is the ability of speakers, using existing resources in the language, to produce and understand novel expressions. In the other case, the one for which we use the term coining, a speaker uses existing patterns in the language for creating new resources".[3] This can be

[3] Note that *resources* here may correspond to '(form-meaning paired) constructions' and *existing*

paraphrased in our framework (i.e. heterogeneous Construction Grammar) as follows. In some cases, the A *as* NP pattern does not function as a 'true' construction (i.e. form-meaning pairing), but it merely functions as a 'form-only' construction (i.e. [A *as* NP]). Therefore, a 'pattern of coining' indicates that there is essentially an autonomous form structure in a construction (cf. autonomous meaning structure). Such form-meaning separation is undesirable for a homogeneous Construction Grammar. A heterogeneous approach thus seems useful and effective in this respect as well.

Let me further explain why a heterogeneous Construction Grammar is more theoretically preferable than a homogeneous Construction Grammar. I claim that only a heterogeneous approach can treat cross-linguistic variations in an efficient way. As clearly mentioned by Boas (2010a: 2), there has been "a striking absence of cross-linguistic generalizations" in Construction Grammar. In response to this fact, a homogeneous approach attempts to provide universal principles constraining language variation in the pairing of form and meaning. In fact, however, even this approach 'implicitly' presupposes certain different levels form and semantic abstraction or schematisation in the analysis.

For example, Leino (2010) focusses particularly on the Argument Structure construction in English and compares it with that of Finnish. Leino (2010) discovers that the formal properties of them are quite different from each other due to their morphosyntactic characteristics (i.e. English (a more isolating language) expresses it by prepositions and word order, whereas Finnish (a more agglutinating language) uses a versatile case inflection system), but their semantic and pragmatic properties remarkably correspond to each other. On this basis, Leino (2010: 104) clearly states that "we can claim that languages do, to some extent at least, often code similar ideas and human experiences with similar morpho-syntactic means,

patterns may mean 'form-only constructions'. The statement is cited from Fillmore and Kay (1997) https://www1.icsi.berkeley.edu/~kay/bcg/lec02.html [accessed in November 2020].

and this results in constructions which are easily perceived as corresponding to each other". Such a statement unarguably indicates that there are certain autonomous semantics and morphosyntax in our language. This perspective is completely the same as that of a heterogeneous approach. Since even some homogeneous constructionists presuppose autonomous form and meaning structures, I contend that a heterogeneous approach is rather desirable to illustrate to what extent form and meaning in a construction is similar or different amongst cross-linguistic variations.

Accordingly, in comparison to a homogeneous Construction Grammar, a heterogeneous Construction Grammar seems more satisfactory in many respects. We will take a heterogeneous point of view throughout the thesis. Let us further look at other examples of validating this approach in the next section.

1.2. Form-Meaning Gaps and Coercion

There are autonomous semantic constructions that are not associated directly with syntax. This is what has generally been called *coercion*. Coercion permits "(partly) conventionalised alternative interpretations of phrases, with no syntactic reflex" (Jackendoff (2013: 82)). One of the typical cases are provided in (11), where the relevant NPs (e.g. *the ham sandwich*) simultaneously refer both to their substantial referents (e.g. the sandwich) and to the associated individuals (e.g. the person with the sandwich), without any syntactic markings. That is, so-called *reference transfers* occur in the examples in (11).

(11) a. The ham sandwich in the corner wants some coffee.

b. Plato is up there on the shelf, next to Chomsky.

c. I'm parked out back. I got hit in the fender.

(cf. Jackendoff (2013: 83))

The NP *the ham sandwich* in (11a) refers to 'the person who ordered or who is eating a ham sandwich'. The proper noun *Plato* in (11b) refers either to 'the book by Plato' or to 'the bust of Plato'. The pronoun *I* in (11c) essentially refers to 'my car'. As explained by Jackendoff (2013: 83), like the *Way* construction, "these coercions afford economy of phonological and syntactic expression".

If we take a homogeneous approach towards coercions, they must be treated as another kind of phenomenon because they are not Saussurean signs (i.e. form-meaning pairings); namely, they essentially lack syntactic forms. In contrast, a heterogeneous approach can regard coercions as just another kind of stored structure in the lexicon. Therefore, it sets an independent syntactic form [NP] and combine each independent meaning of the construction with the form in a different way, as roughly illustrated in (12) (cf. Jackendoff (2013: 83)).

(12) <Reference Transfer Construction>

a. Form: [NP]

b. Meaning: [{person contextually associated with / representation of / book written by / vehicle belonging to} NP]

The next example of coercion is given in (13). The verb *baked* in both (13a) and (13b) appears in the same syntactic structures, but each expresses a certain different characteristic of the grammatical object.

(13) a. John baked the potato.

b. John baked the cake.

(Pustejovsky (1995: 122))

In (13a), *bake* functions as a change of state verb (i.e. raw state to baked state), whereas in (13b) it serves as a creative verb in addition to the denotation of a state of change (i.e. cakes are created from many materials such as wheat flour, eggs, milks, and sugar). In other words, although the syntactic structure is the same, a new meaning (i.e. creative meaning) is added only to the verb in (13b), while there is no such a meaning in (13a) (i.e. only a change of state meaning). The different properties of *bake* between (13a) and (13b) can thus be attributed to the combination of the verb *bake* and the characteristics of each grammatical object: organic (i.e. *potato*) vs. artificial (i.e. *cake*) (cf. 'co-composition' in Pustejovsky's (1995) terminology). Therefore, the examples in (13) share the same syntactic structure but their semantics are completely different.

A homogeneous approach would treat the two expressions in (13) as distinct constructions. In this approach, even though the expressions represent the same syntactic structures, they must be combined with each different meaning of the verb *bake*. That is, *bake* has two independent constructions based on its semantic relationship with a direct object. In contrast, a heterogeneous approach merely sets one syntactic configuration such as [$_{VP}$ *bake* NP] and operates the meaning in its own autonomous semantics, referring to the semantic content of the nouns (cf. 'qualia structure' in Pustejovsky's (1995) terminology). In this approach, therefore, the verb *bake* arguably includes one autonomous syntactic schema and can alternate its different meaning in relation to direct objects; namely, *bake* in (13) has only one construction in essence. This tells us that a heterogeneous approach can avoid stipulating many redundant or unnecessary constructions in comparison to a homogeneous approach. In other words, while the homogeneous Construction Grammar must produce an infinite number of constructions, the heterogeneous Construction Grammar does not need to do so.

Another typical example is provided in (14), in which the verbs directly take 'things' as their grammatical objects.

(14) a. John began a book. (Pustejovsky (1995: 115))

b. Mary enjoyed the movie last night. (Pustejovsky (1995: 88))

c. Mary believes John. (Pustejovsky (1995: 118))

The verbs *begin*, *enjoy*, and *believe* in (14) normally select 'actions' or 'propositions' as their complements. For instance, we generally recognise that *book* is a thing which is 'read' or 'written'. In (14a), however, *begin* takes the grammatical object *a book*. That is, we interpret the sentence in (14a) as 'John began (to read) a book' or 'John began (to write) a book'; nevertheless there is no form which guarantees a certain action-related concept. The same semantic analysis can be applied to (14b) (e.g. 'Mary enjoyed (watching) the movie last night'). In (14c), *believe* takes a proposition in general; that is, a possible interpretation is 'Mary believes (what is said by) John'. Such an interpretive and semantic mechanism is called 'complement coercion' (Pustejovsky (1995), Pustejovsky and Bouillon (1995)). We have observed that there is a certain syntactic structure in (14), but the meaning cannot rely on it. Thus, we need to recognise an autonomous semantic structure in such constructions, and it is only a heterogeneous Construction Grammar that can treat such a form-meaning gap in the construction in an appropriate way.

More prototypical constructions can be conventional or idiomatic constructions like the *What's X doing Y?* construction (Kay and Fillmore (1999)). Observe the following examples.

(15) a. Waiter, what's this fly doing in my soup?

b. What is this scratch doing on the table?

(Kay and Fillmore (1999: 3–4))

Both interrogatives in (15) stand for a specific semantic interpretation associated by convention;

that is, 'How come there's a fly in my soup?' for (15a), for example (Kay and Fillmore (1999: 4)). Such an interpretation is "neither provided by ordinary compositional processes nor derived from a literal meaning by processes of conversational reasoning" (Kay and Fillmore (1999: 4)).[4]

Through observing certain coercion phenomena in this section, we can conclude that the internal structures of a construction, the form and meaning are mutually independent, since coercion is "achieved by imposing the application of a construction even though not all its criteria are satisfied" (Steels (2013: 167)). In order to precisely analyse such form-meaning gaps in the expressions, it is necessary to take a heterogeneous Construction Grammar. Moreover, such an approach can also deal with other phenomena in which lexical items that have phonological and syntactic features but no semantics such as expletive *it* and the *do* of *do*-support for inversion and negation.[5] Similarly, onomatopoeia is a typical phenomenon that has phonology but neither configurational syntax nor compositional semantics in its lexical combination (e.g. *fa-la-la*, *hey nonny nonny*, *doodah doodah*, *inka-dinka-doo*), though it can convey a certain affect (Jackendoff (2013: 75)). In this sense, a heterogeneous Construction Grammar seems more appropriate to analyse such form-meaning gaps than a homogeneous approach. Some scholars whose stance is based on the autonomous semantics are Jackendoff (1990, 2013), Atkins et al. (1988), and Pustejovsky (1995) (cf. Omuro (2019)), to name but a few.

1.3. Coercion in Noun Modification by Adjectives

A similar effect of so-called coercion can be observed in a smaller linguistic unit: noun

[4] Of course, the sentence in (15a) is open to two interpretations and the joke turns on the waiter's pretense of having the wrong one (i.e. Waiter: 'Madam, I believe that's the backstroke') (Kay and Fillmore (1999: 4))).

[5] Note that, in the general theory of Cognitive Grammar (cf. Langacker (2008)), these lexical items are also taken as having semantics on their own.

modification by adjectives (i.e. A-N construction). Pustejovsky (1995) takes up some A-N expressions and shows some fundamental issues in them (cf. Omuro (2019)). This section reviews some typical examples and points out what kinds of issues still remain.

First of all, compare the A-N construction in the (a)-examples with that in the (b)-examples.

(16) a. a bright bulb (Pustejovsky (1995: 89, 127))

b. an opaque bulb (Pustejovsky (1995: 89, 130))

(17) a. a fast typist

b. a male typist

(Pustejovsky (1995: 89))

The adjectives *bright* in (16a) and *fast* in (17a) are known as event predicates; that is, they modify some aspects of the head nouns. Pustejovsky (1995) explains that these adjectives make reference to an event associated with the nouns (i.e. they modify the TELIC role of the noun). For example, *bulb* in (16a) has a function 'to illuminate' and *typist* in (17a) has a function 'to type'. On the other hand, the adjectives *opaque* in (16b) and *male* in (17b) make reference to the FORMAL role of the head noun. They simply subcategorise the type of the head noun. Notice here that the syntactic structure in all the examples in (16) and (17) are the same (i.e. Det + A + N), but their semantic interpretations vary in terms of what kind of property of the head nouns the adjectives modify.

A similar analysis can be observed in (18), where the polysemous adjective *old* is used with either the predicating reading in (18a) or the classifying reading in (18b).

(18) an old friend

a. ‘a friend who is aged’

b. ‘a friend for a long time’

(cf. Pustejovsky (1995: 130), Bouchard (2002: 185))

The adjective *old* in (18) is ambiguous between predication of the referent as in (18a) and the type of friend as in (18b). As explained by Pustejovsky (1995), the latter interpretation is relatively more preferential than the former. In this case, *old* modifies the TELIC role of *friend*,while it modifies the FORMAL role in (18a). There is a one-to-many relationship between the form and its meaning here. Such an analysis seems to follow from the autonomous semantics perspective (cf. Generative Lexicon (Pustejovsky (1995))).

Pustejovksy (1995) explains all the above adjectival modification by the notion of *selective binding*. Selective binding is a generative mechanism in which “the adjective is able to make available a slective interpretation of an event expression contained in the qualia for the head noun” (Pustejovsky (1995: 128)). This purely semantic account seems somewhat parallel to the explanation in a heterogeneous Construction Grammar, since it also regards the meaning structure as independent of the form structure in a construction, though Construction Grammar takes neither ‘generative’ nor ‘derivational’ account into consideration.

However, there are many cases where the notion of selective binding cannot be directly applied, as represented in (19).

(19) a. a tall order

b. high words

(cf. Murphy (2010: 224))

For instance, the A-N construction in (19a) metaphorically denotes 'an order that is difficult to meet' and that in (19b) 'angry words'. These meanings cannot be obtained only by focussing on the semantic relation between adjectives and head nouns, because both adjectives *tall* in (19a) and *high* in (19b) cannot find an appropriate modifying target (cf. 'quale' in Pustejovsky's term) in the meaning structure of the head nouns. As argued by Murphy (2010), Pustejovsky's binding solution works for some but not all adjectives, since it is a 'Noun-based' explanation. Selective binding cannot treat such variations in adjective meaning as those in (19) well. Murphy (2010: 224) then points out that the metaphorical reasoning is needed for these cases, which still seem difficult to deal with only in a Generative Lexicon approach. In other words, Murphy's (2010) claim implies that we need to investigate these cases from an 'Adjective-based' approach.

Let us summarise the issues in noun modification by adjectives in relation to the theory of Construction Grammar. First, there are some cases where form-meaning gaps (cf. coercion) occur. Specifically, the semantic relationship between adjectives and head nouns are various (e.g. *a bright bulb* vs. *an opaque bulb*). Second, one adjectival form can have variations in meaning (e.g. *an old friend*, *a new neighborhood*). Finally, there are some cases where the noun-based analysis cannot be applied (e.g. *a tall order*, *high words*). The last point requires us to explore the very characteristics of adjectives in noun modification. The objective of this thesis is to give certain reasonable answers and plausible explanations to these issues from a heterogeneous Construction Grammar point of view.

1.4. Main Issues

The main issues of this thesis are summarised as follows.

(20) Issues in A-N constructions

a. Semantic peculiarity in attributive modification (Chapter 3)

b. Grammatical peculiarity in predicative use (Chapter 4)

c. The form-meaning gap in English denominal adjectives (Chapter 5)

These issues will be treated in detail in Chapters 3, 4, and 5, respectively.

In addition to the problematic cases in the preceding section, the discussion there motivates us to take into account other A-N expressions whose semantic relations between an adjective and a noun are apparently odd or literally bizarre as in (21b), in contrast to the ordinary case of (21a).

(21) a. bright light; the light is bright

b. ?? bright taste; ?? the taste is bright[6]

In (21a), *bright* shows a predicative function concerning the head noun, while it does not in the case of (21b). The following questions then naturally arise.

(22) a. How do we interpret or construe such semantically peculiar A-N expressions and what kind of linguistic factors are involved in the peculiarity?

b. What part of the head noun does the adjective modify in this type of expression? How is this possible?

c. How do these A-N expressions differ from metaphoric or non-metaphoric ones?

In Chapter 3, we focus on such examples in (21b) and aim to answer the questions in (22) by

[6] The mark '??' means that native speakers find the relevant expression quite difficult to interpret.

observing how those adjectives grammatically behave and how they differ from the normal predicating (cf. qualitative) adjectives. On this basis, we will further analyse how such a predicating adjective modifies the head noun in an A-N construction and how the construction can manifest itself. Furthermore, we will compare the case of English with that of Japanese.

In Chapter 4, we will take up the apparently peculiar behaviour of denominal adjectives. Relational adjectives (RAs), a type of denominal adjectives in English in particular, are taken into consideration. This class of adjective is considered to be one of the typical adjectives functioning as a classifying modifier and unlike predicating adjectives, they do not have a predicative use as in (23a) (vis. non-predicating adjectives). Interestingly, however, they can appear in predicate position in some cases. For example, when some prefixes are attached to this type of adjective, they can occur in predicate position as in (23b).

(23) a. * Those drawings are chromatic. (cf. chromatic drawings)

b. Those drawings are monochromatic. (cf. monochromatic drawings)

That is to say, they seem to have a predicating function, though they are apparently non-predicating adjectives. In this case, too, we will attempt to clarify how these adjectives function in a construction and what kind of factors are related to the phenomenon. Specifically, we aim to answer the following questions in Chapter 4.

(24) a. Why can prefixed RAs appear in predicate position and what kind of factors and functions do these prefixes have?

b. Are RAs in predicate position transformed into predicating adjectives?

c. If so, how is this achieved? If not, how can RAs appear in predicate position?

We will also explore Japanese denominal adjectives in predicate position and compare them to their English counterparts. The main purpose of this dissertation, which is based on the theoretical framework so far introduced, will be accomplished up to here. We will thus observe two types of noun modification by adjectives: namely, prenominal predicating (i.e. qualitative) adjectives and prenominal denominal (i.e. relational) adjectives.

We should further consider how adjectives, as one of the main categories (cf. word class, part of speech), can be defined from a Construction Grammar point of view. Our attention will then be drawn to a different topic; namely, the morphological distribution of denominal adjectives and 'adjectivehood'. Furthermore, we will reconsider the above two constructions and their constructional relationships in the lexicon (cf. *construct-i-con*).

In Chapter 5, we will analyse the constructional properties of denominal adjectives in English. The RA-N construction, for example, has long been said to have the same meaning as the N-N construction, as represented in (25).

(25) a. industrial output [RA-N] 'the output of industry'

b industry output [N-N] 'the output of industry'

The apparent nominal properties of English RAs give us an impression that RAs are 'nominals'. Then, how are RAs different from their base nouns? Furthermore, if we turn to the class of denominal adjectives in English, there is a lexically clear-cut demarcation in terms of its constructional status. Compare the expression in (26a) to that in (26b).

(26) a. high tidal fluctuations *'fluctuations in/at high tide'

(Nikolaeva and Spencer (2020: 291))

b. a blue-eyed boy 'a boy who has blue eyes' (Spencer (2018: 266))

As illustrated by each interpretation in (26), the base noun *tide* of *tidal* in (26a) cannot be modified by another adjective *high*, whereas the adjective *blue* in (26b) can modify the base noun *eye* of *eyed*. What does this base noun modifiability mean? We will discuss this on the basis of Nikolaeva and Spencer's (2020) argument. We will specifically examine whether the denominal adjectives, *-en* adjectives (a type of RA) in particular, are constructionally (i.e. lexically) different from or actually still a part of the base word, investigating the diachronic and morphological statuses of the suffix. We will then attempt to give answers to the following questions.

(27) a. How are the two constructional properties of adjectives (predicating (cf. property-denoting) and subcategorising (cf. type-identifying)) related to each other?

b. How are predicating modifiers and domain modifiers stored in the lexicon? How do we use them properly?

c. How is the categorial status of adjectives captured by the theory of Construction Grammar?

These three main issues are the central ones to be studied throughout this thesis. On the basis of the pertinent literature, we will explore the constructional properties of adjectives used for noun modification.

1.5. General Purpose and Hypothesis

The general purpose of this thesis is to present a Construction Grammar analysis of noun modification by adjectives and give answers to the following questions, approaching some peculiar or idiosyncratic cases in particular.

(28) Overall Questions

a. What is the general principle underlying noun modification by adjectives?

b. Can such a principle explain some other peculiar phenomena, too?

c. In such cases, what kind of factors are essentially involved?

d. How can the adjectival status be defined?

Through the discussions in each chapter, we will attempt to answer these by clarifying how such apparent peculiarities are resolved and what kind of constructional properties and other factors are related to the relevant phenomena. Such an attempt might be somewhat novel in that our discussion focuses largely on 'adjectives' and proceeds based on the theory of (heterogeneous) Construction Grammar.

This thesis will propose an important hypothesis, on which our discussion will heavily rely throughout this study. We will regard the following statement as a crucial and general principle underlying A-N constructions by providing some significant data and evidence. The general principle in (29) is certainly based on the constructional perspective and enables us to analyse the characteristics of A-N constructions in general including some peculiar modificational cases.

(29) The General Principle of Noun Modification by Adjectives

Adjectives in noun modification must be construed in such a way that they intrinsically preserve their constructional properties as modifiers.

a. Even in some semantically or grammatically peculiar cases, the principle is satisfied at an interpretive level.

b. In such cases, the constructional properties of modifiers are merely covert and extra-constructional factors are heavily involved.

The general principle in (29) seems simple but is quite important not only to capture some idiosyncratic cases but also to recapture what has been observed in the previous studies regarding noun modification by adjectives.

On the basis of (29), this thesis makes an overall claim about A-N constructions as follows. First, there are certain basic or default A-N constructions in the lexicon. I argue that peculiar A-N constructions such as coercions do not exist on their own, but rather they are formed online based on the basic ones, inheriting certain specific properties from either syntax or semantics, or both. At an interpretive level, we then associate them with other extra-constructional information such as pragmatics or discourse-functional context (e.g. encyclopaedic knowledge; frames). These extra-constructional factors enable us to construe such peculiar constructions still within a constructional network. This indicates that the relationships between the basic constructions are merely covert. Hence, peculiar constructions are not intrinsically 'peculiar' in that they make the best possible use of the existing form and meaning structures of the basic constructions.

1.6. Organisation

The thesis proceeds as follows. In Chapter 2, we will introduce a theoretical framework proposed by Sullivan (2007, 2013). Sullivan integrates Frame Semantics and Construction Grammar in such a way that they can deal with metaphoric language properly. Her generalisations seem so reasonable that our constructional accounts of peculiar modification phenomena will be based on them. We will employ her two types of modifier-head constructions and redefine them for our own analysis.

In Chapter 3, as observed in the previous section, we will take up the semantically peculiar relation between predicating adjectives and the head nouns in attributive use. Although the adjectives investigated there are all of the predicating-type and the formal

combination of the adjectives and the nouns follows the modifier-head construction, their meanings do not appear to be retained. Specifically, we will attempt to clarify that the adjectives, in fact, turn into another type of adjective showing the subcategorising function at an interpretive level. The same analysis can be applied to the case of Japanese, too. In this respect, both English and Japanese are equivalent. We will contend that a 'coercion' phenomenon (i.e. type-shifting) can occur in adjectives *per se* (e.g. predicating to subcategorising). This fact is quite significant for us to recognise a third type of construction (i.e. the blended domain modifier construction) in noun modification by adjectives. We will also turn our attention to some other examples including phrasal names and transferred epithets and further discuss the *raison d'être* of such A-N expressions.

In Chapter 4, we will investigate the grammatically peculiar behaviour of non-predicating denominal adjectives (i.e. relational adjectives (RAs)) and their corresponding modifiers in Japanese (i.e. N (+ classifier) + *-no*). Even though the apparent form of the modifier-head construction is not maintained (i.e. non-predicating adjectives in predicate position), we can supplement the concept of the head noun at an interpretive level by either contextual information or lexical items such as prefixes and combining forms (i.e. the elliptical use of the head noun). The discussion is shown to be applicable to the case of Japanese.

The consequences obtained in Chapters 3 and 4 indicate that the constructional properties of the adjectives in noun modifying expressions are also retained at an interpretive level. However, we have not yet explored the very constructional properties of adjectives themselves. For example, non-predicating modifiers, relational adjectives in English, show a certain 'mixed' characteristic in that their semantic properties are indeed 'nominal', but their forms are obviously 'adjectival'. In Chapter 5, in order to consider this, our attention will be drawn to the morphological and lexical status of denominal adjectives in English and their 'adjectivehood'. In this chapter, we will examine, based mainly on Nikolaeva and Spencer's

series of works, the constructional properties of denominal adjectives in relation to their canonical functions as a category. Moreover, we will define the canonical categorial status of adjective and illustrate the entire constructional relationships of noun modification by adjectives. The relevant discussion is argued to provide certain important theoretical implications for the field of morphology as well.

In Chapter 6, we will take up some related issues and give them possible explanations from various kinds of perspectives. I will deal with these issues because they are closely related not only to our present discussion but also to future research, and they will turn out to be necessary for us to re-evaluate and elaborate on the arguments in the previous chapters.

In Chapter 7, we will present some concluding remarks and give an outlook for future research.

Chapter 2

Theoretical Framework

2.1. Introduction

As observed in Chapter 1, taking a homogeneous Construction Grammar approach to certain peculiar expressions such as coercions appears problematic in many ways, because it may need to assume as many 'A-N' constructions as the number of its use and hence the undesirable increase of constructions. This fact inevitably leads us to take a different angle, i.e. a heterogeneous Construction Grammar, to effectively bridge the gap between the morphosyntax and semantics of the relevant expressions. Again, this approach seems somewhat uncommon for some construction grammarians because it presumes the independent internal structures in a construction (i.e. autonomous form structure and autonomous meaning structure). I argue that, in peculiar or marked constructions such as coercions, unless the constructions in question are highly conventionalised, certain specific forms and meanings are paired 'online' by inheriting each particular constructional property or by blending some default constructions.

In this chapter, a unified theoretical model is introduced by drawing mainly on Sullivan's (2007, 2013) construction-based grammar approach towards metaphoric A-N expressions (e.g. *bright student*, *mental exercise*). This so-called hybrid theory crucially functions as our basic framework for Chapters 3, 4, and 5 in particular. On the one hand, we will not use all Sullivan's terms and notions but extract some core ideas and more significant concepts in order to accomplish our current goal, maintaining her central argument with our religious care. To do so, we should understand how Sullivan draws the whole picture of A-N expressions with respect to metaphoric language. On the other hand, we will attempt to reinterpret her terminology and redefine them to apply to other peculiar or marked A-N expressions.

This chapter is organised as follows. With respect to A-N expressions (attributive modification in particular), Section 2.2 first reviews some different approaches in the fields of syntax and morphology, semantics, and cognitive-functionalism. We roughly compare them with our framework (i.e. heterogeneous Construction Grammar) and give the reason for the applicability of Sullivan's (2013) construction-based approach. Section 2.3 outlines the following three theoretical frameworks and concepts: Frame Semantics, Construction Grammar, and Conceptual Autonomy-Dependency Asymmetry. We overview there what *frames* and *constructions* are in detail and how they can be combined so as to understand how we construe the metaphoric world particularly via A-N expressions. We further examine how effectively Sullivan (2007, 2013) integrates them into her analysis. On the basis of the terms and notions referred to up to here, Section 2.4 observes how metaphoric A-N expressions are pertinent to non-metaphoric A-N expressions and how their relations can be illustrated. After this, we discuss how Sullivan's framework can be generalised and succinctly summarise it. Along these lines, Section 2.5 redefines the two types of A-N constructions. Furthermore, Section 2.6 introduces some theoretical implications and discusses how our analysis can contribute to other kinds of linguistic theories. Section 2.7 gives a summary of the chapter.

2.2. Different Approaches to A-N Expressions

As an important task to be done before turning to Sullivan's (2013) own analyses of A-N expressions, we will first overview what has been said in other different approaches such as those of syntax, morphology, semantics, and functionalists. We will not examine them closely but simply attempt to acknowledge how A-N expressions (e.g. attributive modification or adjective ordering restrictions) have been analysed in those fields. We will further attempt to reinterpret them within the framework on which this thesis is based, i.e. heterogeneous Construction Grammar.

We will first observe how syntax and morphology treat noun modification by adjectives. There are some important concepts to be taken into account. We will then turn to the field of semantics. Bolinger's (1952, 1967) semantic approach towards attributive and predicative modifications will mainly be overviewed, because his works shed a new light on the present topic, and it is obvious that many scholars have elaborated on them. Finally, we will discuss the functionalist perspective including Cognitive Linguistics. This approach is also important to clarify how adjectives actually work in a grammar as a part of speech.

2.2.1. The Morphosyntactic Approach

As a syntactic approach towards attributive modification, Cinque's (1994, 1999, 2010) sequential works are influential. His main argument is that there are hierarchies of attributive adjective positions within DPs. As explained by Nilolaeva and Spencer (2020: 44), Cinque and his followers claim that "adjectives are specifiers of unique functional heads that are essentially semantically driven". This analysis, in fact, solves the early transformational grammar analysis of prenominal attributive modifiers (i.e. all attributive modifiers derive from a reduced relative clause), which seems problematic, as pointed out by scholars such as Bolinger (1967), Yasui et al. (1976), and Cinque (1994, 1999, 2010), Yamakido (2000) to name but a few.

Another important contribution to attributive adjectives can be found in Sproat and Shih's (1988, 1991) two types of attributive modification: *direct modification* and *indirect modification*. Direct modification is subject to ordering restrictions and permits intersective and non-intersective modifiers, whereas indirect modification is not subject to ordering restrictions and permits intersective modifiers only (Alexiadou and Wilder (1998: 309)).[1] Let

[1] The terms *intersective* and *non-intersective* are mainly used in semantics, so they will be explained in detail in the next section, wherein some semantic approaches are mainly outlined. Here, note that the term intersective corresponds to 'predicating' and non-intersective 'subcategorising' (i.e.,

us observe the difference between them, taking the Chinese examples in (1) and (2).

(1) a. lü-de xiǎo-de huāpíng
green small vase
'small green vase'

b. * lü xiǎo huāpíng
green small vase

(Sproat and Shih (1988: 465, 1991: 565))

The *-de* markers in (1a) seem necessary to satisfy the requirement for accomplishing direct modification as indicated in (1b), but reversing the order of adjectives without *-de* markers in (1b) can fix this problem, as shown in (2).

(2) xiǎo lü huāpíng
small green vase
'small green vase'

(Sproat and Shih (1988: 466, 1991: 566))

From these facts, we assume that indirect modification with the *-de* markers loosen the ordering restriction of attributive adjectives. Indeed, indirect modification is morphosyntactically more complex than direct modification. Indirect modifiers are thus 'covertly' predicative (e.g. *a beautiful princess*) and occasionally take an 'overt' form of a relative clause or a reduced relative clause (e.g. *a princess who is beautiful*). On the other hand, direct modifiers have a simple and small structure due to lack of a predicative component (e.g. *-de* in Chinese), they

non-predicating) for ease of reference.

cannot be used in a predicative manner (e.g. *industrial output* vs. **the output is industrial*) and must appear in the possibly closest position to the head noun (e.g. **wooden big table* vs. *big wooden table*).[2]

On the basis of the syntactic findings, Nagano (2013) analyses how morphology varies between direct and indirect modification in detail. She explains that the small structure of direct modification is a consequence of direct modifiers' agreement condition and non-projecting status. This morphological requirement (i.e. an incorporated form) cannot be apparent in the case of simplex adjectives, but it can in the case of complex premodifiers because they take phrasal forms when in postnominal position. Thus:

(3) a. a {ten-year-old / *ten-years-old} girl

b. a girl who is {ten years old / *ten-year-old}

(4) a. degree-conferring institution

b. institution that {confers degrees / *is degree-conferring}

(5) a. British-based company

b. company that is {based in Britain / *British-based}

(6) a. the Balkan-weary troops

b. the troops that are {weary of the Balkans / *Balkan-weary}

(7) a. doctor-patient dialogue

b. dialogue {between a doctor and his or her patient / *between doctor-patient(s) / *that is doctor-patient}

(cited from Nagano (2013: 117))

The example of (3) is a measure phrase and it clearly alternates its phrasal form in the

[2] See Chapter 4 for more detailed observation and discussion of these behaviours.

predicative position as in (3a), while it takes a compound form in the attributive position as in (3b). Similarly, the examples of (4) and (5) are deverbal compounds and that of (6) is a simplex compound. The former's counterpart of the premodifiers are VPs (verb + object) and the latter's is an AP (adjective + prepositional object). Finally, the example of (7) is a coordinate compound. As shown in (7b), this premodifier cannot be also used predicatively. Thus, all the examples above are considered 'attributive-only adjectives', as argued by Nagano (2013: 118).

Nagano's (2013) significant findings concern not only the morphological condition for direct modification but also the close morphological relationship between phrasal indirect modifiers such as APs and PPs and direct modifiers such as compounded, derived, and incorporated forms. In this sense, her analysis sheds a new light on the very mechanism of English attributive modification and reveals the 'morphology of direct modification'. We will explore one of the purely morphological topics in Chapter 5, focussing on denominal adjectives which can be considered prototypical direct modifiers in English.

What should be emphasised here is that the direct and indirect modifications are genuinely 'syntactic' concepts. Direct and indirect modifications deal exclusively with the modification system of languages. It simply demonstrates that when a language shows a certain ordering restriction of adjectives in attributive modification, there must be a hierarchical structure in adjectives. This may be observed in any kinds of language unless they lack attributive modifiers (Nishimaki (2018)).[3] Therefore, I argue that we should in fact call them 'direct/indirect modification structure'. They do not intervene in the semantics of adjectives itself, but just concern the type of interpretations associated with attributive modifiers. We

[3] Baker (2003) and Cinque (2010) observe that there are languages where adjectives can be used as predicates but not as adnominal attributes such as *Slave*(*y*) (an Athapaskan language), *Lango* (a Southern Luo dialect of Uganda, cf. Noonan (1992)), *Hixkaryana* (one of the Cariban languages) and *Tiriyó* (the Cariban language, cf. Dixon (2004)).

will not delve into the detailed interpretational properties corresponding to each modification structure, but they can be roughly summarised as in (8).

(8)

[Det.	[Indirect (RCR) modification	[Direct modification	NP]]]
[Det.	[stage-level (or individual-level)	[individual-level	NP]]]
[Det.	[restrictive	[non-restrictive	NP]]]
[Det.	[implicit relative clause	[modal	NP]]]
[Det.	[intersective	[non-intersective	NP]]]
[Det.	[relative (to a comparison class)	[absolute	NP]]]
[Det.	[comparative (with superlatives)	[absolute (with superlatives)	NP]]]
[Det.	[specificity-/non-specificity-inducing	[specificity-inducing	NP]]]
[Det.	[epistemic ‘unknown’	[evaluative ‘unknown’	NP]]]
[Det.	[discourse anaphoric ‘different’	[NP dependent ‘different’	NP]]]
[Det.	[deictic	[generic	NP]]]
[Det.	[literal interpretation	[possible idiomatic interpretation	NP]]]

(Cinque (2010: 27, 33))

Taking just one of these, *individual-level* and *stage-level* readings for example, we can say that prenominal adjectives in English are consistently ambiguous between a reading that denotes a ‘perpetual’ property of the noun and a reading that denotes a ‘temporary’ property of it (cf. Bolinger (1967), Ferris (1993), Sadler and Arnold (1994), Svenonius (1994), Larson (1998)). Let us observe this in (9).

(9) The visible stars include Aldebaran and Sirius

a. ‘The stars that are generally visible include Aldebaran and Sirius’

b. ‘The stars that happen to be visible now include Aldebaran and Sirius’

(Cinque (2010: 6))

The prenominal adjective *visible* in (9) is in fact two-ways ambiguous in reading. The interpretation of (9a) shows an *individual-level* reading and it thus indicates an essential and persistent characteristic of the noun *stars* that include Aldebaran and Sirius. On the other hand, in (9b), the interpretation is that the *stars* that are temporarily able to be seen include those stars (i.e. *stage-level* reading). Interestingly, the same adjective co-occurs in prenominal position, in which case the interpretational ambiguity is resolved by its syntactic position. The left most *VISIBLE* in (10a) is given a pitch accent[4] and it corresponds to *stage-level* reading while the *visible* next to *star* has an *individual-level* reading. The *VISIBLE* which has a *stage-level* reading, in fact, can also appear in postnominal position, as indicated in (10b). Observe:

(10) a. Every VISIBLE visible star (cf. *Every visible VISIBLE star)

b. Every visible star VISIBLE

(Cinque (2010: 19), cf. Larson (1998: 155–156))

The distribution of an adjective towards the head noun and its interpretation properties can thus be supported reasonably by their corresponding syntactic positions (i.e. direct and indirect modification).

Along these lines, the morphosyntactic perspective, though it was quite roughly reviewed, postulates a syntactic and hierarchical basis for adjectives in attributive position and treats their grammatical behaviours as essentially one of the fundamental aspects of adjectives. We

[4] Note that the capital letters in this example directly quoted from Cinque (2010). There is no explanation by Cinque (2010) for what the capital letters indicate; however, generally speaking and based on other previous studies, *stage-level* predicates normally receive a pitch accent.

should now stop the discussion in the field here and turn next to the semantic perspective.

2.2.2. The Semantic Approach

As explained by Nikolaeva and Spencer (2020), the standard theoretic approach to the semantics of attributive modification is by referring to both the modifiers and the heads as predicates and combining their meanings (cf. Siegel (1980), Higginbotham (1985), Heim and Kratzer (1998), Morzycki (2016), to name but a few).

In the phrase *red ball* for example, the adjective *red* denotes the set of entities whose property is being red. The meaning of attributive modification by adjectives, in a pragmatically neutral usage, is intersective. This intersective modification, however, is semantically equivalent to the unmodified meaning of the head noun and thus the combination of an adjective and a noun is identical to a common noun.

If we attempt to formalise *red ball* compositionally, the interpretation can be represented as follows:

(11) a. *the red ball*: the (ball ∩ red) = λx [red(x) ∧ ball(x)]

b. *X is a red ball*: X is red and X is a ball

(Nikolaeva and Spencer (2020: 41))

Roughly speaking, the phrase *red ball* in (11a) means that "the set of all those entities which are both members of the set of red things and also members of the set of balls" (Nikolaeva and Spencer (2020: 41)), which can also be paraphrased as in (11b). This kind of intersection theory has been influential to attributive modification and its related phenomena; however, as pointed out by Morzycki (2016), there are many cases to which this approach cannot be applied (cf. Nikolaeva and Spencer (2020: 42)). Thus:

(12) a. a {skillful / lousy / experienced / typical} surgeon, a large mouse, a big ant, a small elephant

b. a beautiful dancer, an old friend, a fast typist

c. a {fake / pretend / fictitious / artificial} gun, an {alleged / probable / likely / potential} murderer

d. your {former / present / erstwhile / previous / old} spouse

(Morzycki (2016: 16, 18, 24, 45), Pustejovsky (1995: 89))

The adjectives in (12a) are contextually salient properties of each entity and called 'subsective adjectives'[5] (see Kennedy (1999), Kennedy and McNally (2005)). When speakers interpret the phrases in (12a), they are required to know in what points or how good the surgeon is, and what sizes are standard for mice, ants, and elephants, respectively. Speakers then, based on the world knowledge, evaluate the entities. Therefore, regarding these cases, the properties of the head nouns are not determined by the semantics of the head noun itself but is established in a contextual manner. The second examples in (12b) can be ambiguous between intersective and non-intersective readings. We will return to this case later. Thirdly, the adjectives *fake* or *alleged* in (12c) are basically called 'privative adjectives' which denote a non-intersective reading, bearing a negative entailment (i.e. 'not having N') and they are not even subsective (e.g. *X is a fake gun*: X is not actually a gun) (Nikolaeva and Spencer (2020: 42)). The final examples in (12d) are called 'modal adjectives'.[6] The privative and modal adjectives have a

[5] The term 'subsective adjective' is a linguistic term and means. Morzycki (2016: 296) explains that "an adjective such as *skillful* in *skillful surgeon* that can be viewed as mapping the extension of a noun to a subset of it (i.e. *skillful surgeons* are a subset of surgeons)". Strictly speaking, "all intersective modifiers are also subsective, but the term 'subsective' is usually used more narrowly to include only non-intersective subsective modifiers. *Skillful*, for example, is non-intersective because a skillful surgeon is not simply someone who is a surgeon and skillful at something" (Morzycki (2016: 296)).

[6] Modal adjectives express quantification over possible worlds, such as *alleged* or *potential* (Morzycki (2016: 292)).

common core meaning: *intensionality* (Morzycki (2016), Nikolaeva and Spencer (2020)).[7] *The former president*, for example, indicates an individual who used to be a president but has no more such an occupational identity now.

Let us now turn back to the case of (12b) and consider the famous example *a beautiful dancer* in a deeper way. When the adjective *beautiful* prenominally modifies the noun *dancer*, there are two possible ways of interpreting the expression in English: the noun has its referent and reference, either of which can be the target of modification. Bolinger (1967: 14–23) discusses the functional differences between these two modification types (i.e. *referent-modification* and *reference-modification*). To briefly summarise, adjectives used in referent-modification predicates a property of the referent designated by a noun, and those used in reference-modification identifies the semantic domain of a noun. As Kotowski (2016: 29) explains, in referent-modification, there is an "already established reference of an NP that is modified", whereas reference-modification "intervenes in the nominal reference system as such". In other words, referent-modification is semantically equivalent to *predication*, in which the adjective describes a property of a 'pre-established' nominal (i.e. the subject), which is available even when the form itself is 'A-N'. In reference-modification, on the other hand, an adjective prenominally maps its property on a noun's property.

The difference in the modification target (i.e. *referent* and *reference*) naturally leads to two different readings of an A-N expression. Let us observe the example *a beautiful dancer* again in (13).

(13) Olga is a beautiful dancer.

a. Intersective: 'Olga is a dancer and she is beautiful.'

[7] Nikolaeva and Spencer (2020: 42) explain that the term *intensionality* is "the meaning denoted by the modified phrase may hold of an individual even if the unmodified meaning does not".

b. Non-intersective: ‘Olga is beautiful as a dancer.’ / ‘Olga dances beautifully.’

(Larson (1998: 145), Morzycki (2016: 34–41))

In referent-modification, the adjective *beautiful* predicates a property of the referent designated by the noun *dancer* in this example (i.e. *Olga*). As a result, *beautiful* functions as describing how *Olga*’s appearance looks like, as shown in (13a). This reading is known as *intersective*, where the term *intersective* means that “[adjectives] as well as every common noun denote sets of individuals [...], their combination in an AN-syntagm amounts to intersecting the two expressions’ extensions, i.e., two sets of individuals” (Kotowski (2016: 42)). Accordingly, the first property of *Olga* ‘Olga is a dancer’ and the second ‘Olga is beautiful’ are intersective here. On the other hand, in reference-modification, *beautiful* does not state whether the dancer *Olga* herself is *beautiful* or not, but it identifies *Olga* as a type of *dancer* who dances very well (i.e. *beautifully*), as the paraphrase in (13b) shows. This reading is called *non-intersective*.

In sum, prenominal adjectives in English have in principle both an intersective reading (i.e. describing a property of the noun) and a non-intersective reading (i.e. identifying the semantic domain of the noun), which reflects two modification patterns. In this sense, an English A-N expression is ambiguous between the two readings. This conclusion is the same as that of the morphosyntactic perspective; namely, the relevant construction has not only an independent form structure but also an independent meaning structure on its own (see the discussion around the example in (17)).

From a semantic point of view, we should also mention Pustejovsky’s (1995) model of the Generative Lexicon (cf. Pustejovsky and Bouillon (1995)). He attempts to clarify the systematic polysemy of lexical words and this can also be involved in the modification phenomena. Let us consider again the following pair of attributive modifications, in which the syntactic structure is completely the same (i.e. Det. + A + N) but the semantics is different.

(14) a. a bright bulb (cf. a fast typist)

b. an opaque bulb (cf. a male typist)

(Pustejovsky (1995: 89, 127, 130))

In (14), as argued by Omuro (2019: 179), the two adjectives have a completely different modifying target of the head noun. In the case of (14a), the adjective *bright* semantically selects a TELIC role of *bulb* as its modifying target. In this case, *bright* is considered an event predication (i.e. *illuminate* for *bulb*) and thus *a bright bulb* is "a bulb which shines brightly when illuminated" (Pustejovsky (1995: 130)). In contrast, what the adjective *opaque* semantically modifies is not the TELIC but the FORMAL role. The adjective modifies not an activity or state associated with the object such as *bright*, but the physical object itself and thus *an opaque bulb* means a bulb whose glass is not clear enough to see through. A similar contrast can be observed between the cases of *a fast typist* [TELIC] and *a male typist* [FORMAL]. The TELIC or FORMAL is included in the roles (i.e. *quale*) of 'Qualia Structure' proposed by Pustejovsky, which is described in Table 2.1.

Table 2.1. Qualia Structure in the Generative Lexicon

(i)	CONSTITUTIVE: the relation between an object and its constituents, or proper parts
	(a) Material
	(b) Weight
	(c) Parts and component elements
(ii)	FORMAL: that which distinguishes the object within a larger domain
	(a) Orientation
	(b) Magnitude
	(c) Shape
	(d) Dimensionality
	(e) Colour
	(f) Position
(iii)	TELIC: purpose and function of the object
	(a) Purpose that an agent has in performing an act
	(b) Built-in function or aim that specifies certain activities
(iv)	AGENTIVE: factors involved in the origin or 'bringing about' of an object
	(a) Creator
	(b) Artifact
	(c) Natural kind
	(d) Causal chain

(Pustejovsky (1995: 85–86), cf. Nikolaeva and Spencer (2020: 55))

With respect to this kind of semantics of modification, Omuro (2019: 180) argues that we should not take a syntactic approach but take a general semantic rule such as *selective binding* (cf. Bartsch (1985), Pustejovsky (1995: Ch. 7.3)). Even if syntax attempted to establish a distinct structure for each adjectival modification, it would certainly be *ad hoc* and result in yielding many undesirable features and rules. Such a consequence is not preferred for the recent syntax (i.e. the Minimalist Programme) in particular.

2.2.3. The Cognitive-Functional Approach

Functionalists generally assume that grammar works for symbolising semantic functions (e.g. Halliday (1994), Halliday and Matthiessen (2004), Langacker (1987, 1991), McGregor

(1997), to name but a few). On this basis, modification relations involving adjectives and their semantic functions in the English nominal phrases are generally encoded by different modification constructions (cf. Davidse and Breban (2019)). This can be found in the following expressions. Thus:

(15) a. the *glassy* green sea water

b. the simple *glassy* arm spines

c. the present disordered *glassy* state

(Feist (2012: 2), italicising mine)

The adjective *glassy* in (15) appears in different positions in each nominal phrase. Interestingly, when the same adjective (i.e. *glassy*) occurs in different positions within the phrase, its meaning alternates with the change in position: 'lustrous and transparent as glass' for (15a), 'resembling… glass' for (15b), and 'characteristic of glass' for (15c).

Feist (2009, 2012) argues, based on the above observation, that the adjective functions differently in each modification construction. His analysis is based on Halliday and Matthiessen's (2004) model of the Systemic Functional Grammar, which takes the view that "language is functional, that utterances and even individual phrases may serve several functions at once, and that those functions use syntax, semantics and phonology flexibly as means to a goal" (Feist (2012: 3)). Feist (2012) accounts for the meaning difference in (15) along with Quirk et al.'s (1985) 'Zones of premodification' and suggests more descriptive terms for them. It can be roughly depicted regarding the example of (15) as in Table 2.2 below.

Table 2.2. The distribution of *glassy* in the zones

Determiners	Premodifiers				Head
	Reinforcer	Epithet	Descriptor	Classifier	
	Zone I: precentral	Zone II: central	Zone III: postcentral	Zone IV: prehead	
the		*glassy*	*green*	*sea*	*water*
the		*simple*	*glassy*	*arm*	*spines*
the		*present*	*disordered*	*glassy*	*state*

(cf. Feist (2012: 4, 9–10))

Let us observe the semantic structure of 'Classifiers' (cf. Zone IV) first. As agued by Feist (2012: 37), the grammatical meaning of Classifiers in a construction is an implicit relation between modifier and head. For example, in the phrase *French teacher*, the meaning relation between *French* as a classifier and *teacher* as a head noun can be ambiguous, unless we obtain the following constructions: *English French teacher* vs. *French English teacher*. In these cases, the former refers to a teacher of French, but the latter denotes a teacher from France. Thus, these different constructional meanings, as argued by Feist (2012: 38), derive from "the position or order, not from the word itself". This constructional meaning can also be observed from the unacceptability of Classifiers in a predicative use (e.g. **The honey is clover* ('clover honey'), **The lawyer is criminal* ('a criminal lawyer')). We thus must add a certain constructional meaning for these expressions to be capable of being predicative as follows: *The honey is* OF THE *clover* TYPE, *The lawyer is* OF THE *criminal*-LAW TYPE. Feist (2012: 38) says that "Classifiers as individual words do not denote qualities, but constructional meaning and referential meaning combine to provide them".

We turn to the semantic structure of 'Descriptors' (cf. Zone III). Descriptors differ from Classifiers in that they have no referential meaning but have descriptive meaning, though their

perceptual meaning is less specific and not gradable. For example, in the following phrases *full-length black leather coat*, *cold rain showers*, *a mammoth three-tiered wedding cake*, the underlined words denote a perceptual quality or state that should be ascribed to each head (i.e. entity). It seems that Descriptors commonly express "direct connection to the visual perception system", as described by Lamb (1999: 146). Also, Descriptors are not gradable; namely, intensifiers such as *very* cannot be added to the following phrases for example: *silver hair*, *smashed chair*, *disabled Irish writers*, *little black dress*.[8]

The semantic structure of 'Epithets' (cf. Zone II) is similar to that of descriptors in some points, however, the difference between them is whether they are gradable or not (e.g. *big*, *bigger*, *biggest*; *curious*, *more curious*, *most curious*; *very*, *highly*, *extremely*). Furthermore, as pointed out by Feist (2012: 65), in relation to Zone premodification, Epithets are "more vague and general" than Descriptors and they take "expressive and social meaning". In the phrase *sexy new, restyled Ford Mondeo*, the Epithet *sexy* leads the hearer to apply the 'attractiveness' of *new, restyled Ford Mondeo* (Feist (2012: 62)).

Finally, 'Reinforcers' (cf. Zone I) correspond to 'intensifying adjectives' in the sense of Quirk et al. (1985: 1338). They have "a heightening effect on the noun that they modify, or the reverse, a lowering effect" (Quirk et al. (1985: 429)). This includes the following underlined adjectives *pure fabrication*, *outright lie*, *sheer arrogance*, *complete fool* (Quirk et al. (1985: 429)). These adjectives reinforce the concept denoted by each noun.[9] As explained by Feist (2012: 68), Reinforcers semantically differ from other modifiers in the sense that they have no descriptive meaning and they are thus more grammatical.

In sum, the semantic structure of the Zones of premodification can be more descriptively

[8] Note that when descriptors show a certain gradablility, they are no longer descriptors but epithets.

[9] For example, in *absolute idiot*, the adjective "*absolute* reinforces the concept IDIOCY in the noun" (Feist (2012: 9)).

represented by each label, Classifiers (i.e. referential meaning and constructional meaning), Descriptors (i.e. nonscalar descriptive meaning), Epithets (i.e. scalar descriptive and expressive meaning), and Reinforcers (i.e. reinforcing meaning). The significant consequence from this functional perspective, there is a rough correlation between premodification position and part of speech. A various kind of premodifiers can in fact be used when they modify the head nouns, regardless of their parts of speech (cf. Levi (1978: 57)). As contended by Feist (2012: 69), "how we use modifiers depends on their semantic structure, not on the part pf speech". This statement is quite important in considering what adjectives are as a part of speech, which will be discussed in Chapter 5 in detail. From a functionalist perspective, Halliday and Matthiessen's (2004: 29–30) model of functions (i.e. 'metafunctions') of language can be captured by premodifier's semantic structure, which is summarised by Feist (2012: 71) as follows:

(16) a. Referential and descriptive meaning serve the experiential function.

b. Expressive and Social meaning serve the interpersonal function.

c. Grammatical meaning (in both the modifying and intensifying forms) serves the textual function of building cohesion and continuity.

On this basis, the zones are considered as being correlated with both types of meaning and functions of language.

The cognitive-functional approach thus shows the mind's ability to process the semantic structure and content of language, which fundamentally constrains the rule of language (cf. Givón (1979)). This can be clarified and confirmed by focussing on how premodifiers are unconsciously and unmarkedly ordered based on the four different zones and the relevant grammatical rules. On this basis, we can understand, though quite roughly, the very

mechanism of adjectival modification from a functional perspective.

The theory of zones of premodification seems to have a similar view to a construction grammar approach. In Feist's (2012) explanation, prehead modifiers called 'Classifiers' have referential meaning and function to designate entities as a unit. They often seemingly denote descriptive meaning, but it is either constructional meaning (i.e. essential meaning) or our world knowledge of the entity referred to (i.e. possible meaning). Central modifiers called 'Epithets', on the other hand, have descriptive meaning and function to give some scalarity or gradability to the head nouns. These characteristics are shared by 'descriptors' in some points but unlike Descriptors, the meaning of Epithets appears more general, expressive, and social. These modifiers thus have both simple lexical meaning and constructional meaning, as argued by Feist (2012: 45).

2.2.4. Comparison with Other Approaches and Heterogeneous Construction Grammar

In this section, I make a brief comment on each different approach to A-N expressions by reinterpreting them and re-examine them in terms of a heterogeneous Construction Grammar approach. After this, pointing out some remaining issues (e.g. the very constructional properties of adjectives), I claim that, at an interpretive level, certain pragmatic or discourse functional information (e.g. *frames*) is necessary to construe the intended meaning of the A-N expressions. At the end of the section, I argue that it is a unified approach (i.e. a combinatory theory of Frame Semantics and Construction Grammar) that can deal with numerous kinds of modification phenomena including some peculiar A-N expressions.

First of all, in the morphosyntactic approach, recall that direct modification is, as originally claimed by Sproat and Shih (1988, 1991), open for both intersective and non-intersective readings, whereas indirect modification has only an intersective reading (cf. Nagano (2013)). In other words, the two types of modification structures have corresponding

interpretations, but they are not one-to-one correspondence. This implies that direct and indirect modification structures exist independently from semantics and hence they do not straightforwardly determine the meanings of attributive adjectives by themselves (at least in the minimum form such as A-N).

Turning back to our construction-based theory and reinterpreting these two distinct types of modification structure within it, we then notice that such a morphosyntax perspective effectively illustrates the 'form' structure of A-N constructions. In fact, to assume the two modification structures is quite similar to the view of a heterogeneous Construction Grammar. That is, for example, the meaning of the attributive adjective *old* in (17) is ambiguous in two ways, as provided in (17a) and (17b) respectively.

(17) an old book

a. 'a secondhand book'

b. 'a book which is old'

(cf. Nishimaki (2018: 39–40))

The adjective *old* in (17) can function either as a direct modifier (i.e. (17a)) or as an indirect modifier (i.e. (17b)). Put differently, the adjective shares its formal properties between (17a) and (17b), regardless of its semantic properties. However, at an interpretive level, its form structure must be paired with certain specific meaning structures in relation to the head noun, distinguishing the reading of (17a) from that of (17b). In this sense, unless the A-N constructions in question are highly conventionalised (i.e. the form-meaning pairing of a construction is fixed in the lexicon), we should recognise the autonomous form structure (i.e. morphology and syntax) in a construction. Such a conclusion is naturally obtained by taking a heterogeneous Construction Grammar point of view, but not a homogeneous one (see Chapter

5 for more detailed discussions of autonomous form structures in a construction).

Next, in the semantic approach, both Bolinger's and Pustejovsky's semantic accounts of A-N expressions are reasonable to recognise that there is a certain autonomous semantic composition in language. The Generative Lexicon as proposed by Pustejovsky, in particular, can demonstrate the semantic relationship between the constituents of a great number of A-N expressions, even when they represent the same syntax and hence it can be a strong claim for the need of 'autonomous semantics' in generative grammar. As discussed in Chapter 1, a heterogeneous Construction Grammar has affinities to such semantic analyses, since it also presumes the autonomous semantic structure in a construction. Therefore, like the morphosyntactic approach, the semantic approach is essential to attributive modification and related issues, and it actually attempts to establish more general semantic principles in language from various kinds of perspectives.

According to my understanding, however, both Bolinger's and Pustejovsky's focuses are, in fact, still on the semantics of the head nouns in modification and illustrate it in relation to the adjectives. For example, Bolinger's terms (e.g. *referent* and *reference*) are attributed to the category Noun because nouns are basically 'object-denoting' words regardless of whether the objects are concrete or abstract (see Chapter 5 for more discussions about lexical categories). Pustejovsky's terms (e.g. *qualia structure* and *type-shifting*) are also intended to reveal what kind of internal structure nouns actually have by themselves. Therefore, these semantic approaches are still 'Noun-based' semantic approaches.

However, there are many cases to which a noun-based semantic analysis cannot be directly applied. Regarding the expressions in (18), for instance, neither Bolinger-style semantic analysis nor the Generative Lexicon may not be able to deal with their semantics, because most of them have already been highly conventionalised and established as idiomatic expressions.

(18) a. the silly season

b. heavy drinker

c. easy money

d. warm welcome

(cf. Bruening (2020: 373))

In (18), while each head noun literally expresses its substance, each adjective expresses a certain figurative meaning (e.g. *silly* 'unimportant (stories / news)', *heavy* 'a large quantity of', *easy* 'without having to work very hard', *warm* 'kind', cf. *OALD*)). In fact, a type-shifting analysis cannot be applied here, since in these examples, it does not occur in the head nouns but in the adjectives (see the detailed treatment for this phenomenon in Chapter 3). These examples tell us that there are many instances whose semantics cannot be obtained by only calculating their literal meanings of the head nouns. For such A-N expressions, it is fairly obvious that we need another different approach and hence at least a more 'Adjective-based' approach.

As for the expressions in (19), all the combinations of adjectives and nouns are highly idiomatic; hence, the semantics between the constituents are completely opaque.

(19) a. the good people

b. a lame duck

c. dead wood

d. red herring

(cf. Bruening (2020: 373))

Needless to say, these A-N expressions can express their literal meanings in some cases;

however, in most cases, they denote highly idiomatic meanings such as *the good people* 'fairies', *a lame duck* 'a person or an organisation that is not very successful and that needs help', *dead wood* 'people or things that are no longer useful or necessary in an organisation', and *red herring* 'an unimportant fact, idea, event, etc. that takes people's attention away from the important ones', cf. *OALD*)). As far as I know, there is only one way to deal with the semantics of these A-N expressions, that is, Construction Grammar.

Finally, in the cognitive-functional approach, functionalists treat the adjectives in attributive modification by focussing more on attributive adjectives *per se* and attempt to reveal how they serve as modifiers in A-N expressions. The terms *Classifier* and *Epithet* have their respective meanings and functions which derive from a purely semantic relationship with the head noun. As strongly argued by Feist (2012), the meaning and function of Classifiers (i.e. referential) and Epithets (i.e. descriptive) are determined by their fixed construction with respect to the head. This way of thinking is considerably similar to that of the general framework of Construction Grammar, in that the meaning and function of prenominal adjectives cannot be established on their own but determined by their constructional meaning in relation to the head noun. Therefore, while Classifiers subcategorise a type of a noun, Epithets describe a property of the noun.

Having overviewed different kinds of approaches so far, we are now in a position to point out some remaining issues in analyses of A-N expressions. Let us consider the following minimal pair of A-N expressions.

(20) a. a grammatical genius

b. a grammatical sentence

(Plag (2003: 94))

The expression in (20a) means 'a genius who specialises in grammar', whereas that in (20b) means 'a sentence which is grammatical'. From a morphosyntactic point of view, the status of adjective *grammatical* may be problematic, because there is no morphological marking on the adjective to differentiate the former meaning from the latter one. In other words, *grammatical*, a type of denominal adjective (i.e. *grammatical* < *grammar* + *-tical*), does not contribute to the semantic and functional distinction between (20a) and (20b) by itself.[10] Therefore, in this case, we must rely on the head nouns in order to obtain the intended meaning of each A-N combination in (20).

Here, if we assume that both expressions in (20) are instances of direct modification structure, *grammatical* in (20a) must have an intersective (i.e. predicative) meaning, but this is not true (i.e. **the genius who is grammatical*). By contrast, *grammatical* in (20b) denotes an intersective meaning (i.e. *the sentence which is grammatical*). Thus, *grammatical* in (20a) is a direct modifier, whereas that in (20b) is an indirect modifier. Therefore, direct modification is a merely syntactic modification 'structure' and there is no clear distinction between its possible interpretations.

Similarly, the semantic approach also depends on the semantic structure of the head nouns; otherwise, the adjective *grammatical* cannot establish its status as a reference modifier (i.e. (20a)) or referent modifier (i.e. (20b)). For example, *grammatical* in (20a) classifies a type of *genius* and identifies that *genius* with respect to the specific area 'grammar', and not other areas such as *physical* 'physics', *chemical* 'chemistry', *aesthetic* 'aesthetics', or *musical* 'music'. On the other hand, *grammatical* in (20b) predicates a property of the referent

[10] This kind of morphological phenomenon is known as *secondary conversion* (cf. Namiki (1985)). In this case, *grammatical* changes its nominal properties (i.e. object-denoting and non-gradable; **a very grammatical genius*) into a true adjectival predicate such as predicating (cf. qualitative) adjectives (i.e., property-denoting and gradable; *a very grammatical sentence*). Therefore, although *grammatical* does not change its 'form', it changes its 'grammatical function' within the same category Adjective. Other examples are countable uses of uncountable nouns and transitive uses of typically intransitive verbs (Leech (1974: 215–216), Quirk et al. (1985: 1563), Bauer (1983: 227–228)).

sentence. In the cognitive-functional approach, too, whether *grammatical* in (20) is a Classifier or an Epithet cannot be determined without considering what kind of head nouns are combined with the relevant adjective in a construction.

On the basis of these observations, we still need to ask the following questions: (i) how such a two-way ambiguous reading of direct modification structure can be clearly differentiated?; (ii) when head nouns are modified by different types of adjectives, how their referents and references are determined?; and (iii) what kind of lexical or grammatical properties does *grammatical* in (20) need to have for modification in general? In order to answer these questions, we need a certain hypothesis with some theoretical tools that governs the general principle of A-N expression. I argue that, as one of the (heterogeneous) Construction Grammar approaches, Sullivan's (2007, 2013) construction-based analysis of metaphoric language should work for this.

In her analysis, Sullivan (2013) attempts to establish a general principle which governs the grammar of metaphoric language. Although she does not intend that her constructional analysis towards metaphoric A-N constructions should be based on a heterogeneous point of view, as far as my understanding is correct, her integrated model of construction grammar (i.e. Frame Semantics and Construction Grammar) can function as a heterogeneous approach. In the next section, we outline how she integrates different kinds of theories into her own unified model.

2.2.5. Summary

In terms of direct and indirect modification structures, these terms refer only to attributive adjectives' positions in syntax. They are not considered in relation to what kind of semantics of adjectives *per se*. Their meanings and interpretations are completely dependent on their syntactic positions with respect to the head nouns. These terms are significant for the

semantics of attributive adjectives, even if the formal combination of a modifier and a head is the same (e.g. *an old friend* 'a friend who is aged' vs. *an old friend* 'a friend for a long time', Bouchard (2002: 185)).

From a semantic perspective, Bolinger's (1967) contribution is to clarify what semantic part of the head nouns prenominal adjectives modify. For example, unlike direct modification, reference-modification is not open for ambiguous reading, but it is only applied to non-intersective (i.e. classifying or subcategorising, cf. subsective) reading because an adjective in reference-modification determines or classifies a type of reference of a noun whereas an adjective in referent-modification designates an individual and predicates a property of the referent of a noun.

Finally, the cognitive-functional approach treats A-N expressions in a similar way to the general (homogeneous) Construction Grammar. As explained by Feist (2012), it focuses on the meanings and functions of prenominal adjectives and determine their semantic relationship with the head nouns. Therefore, as in the case of Construction Grammar, the interpretations of A-N expressions are dependent both on the lexical semantics of each constituent (i.e. adjectives and nouns) and on the constructional meanings (e.g. zones).

So far, we have recapitulated the different frameworks and their theoretical manifestations in relation to the theory of (heterogeneous) Construction Grammar. This attempt can be considered to let us deeply understand how Sullivan's (2007, 2013) theoretical framework should work for the analysis of the data presented in later chapters and to further tell us that her framework can be extended to more complex modificational phenomena as well.

2.3. Frames and Constructions

Words by themselves are not enough to convey appropriate and intended meanings. For example, the mere juxtaposition of *tall* and *man* does not mean the following intended meaning:

the man who is tall. Moreover, as explained by Sullivan (2013: 2), this is more obvious in the case of metaphoric language. For instance, the mere apposition of *spiritual* and *wealth* does not necessitate a metaphoric interpretation; she claims that "the nominal phrase *spiritual concerns about wealth* refers to unease about literal monetary wealth", even though the phrase includes the words *spiritual* and *wealth* (Sullivan (2013: 2)). On the basis of this observation, when we capture the meaning (i.e. denotation and connotation) of a sequence of words, they have to occur in a particular grammatical relation. For the current example, we should identify the *modifier-head* construction, in which the modifying adjectives (i.e. *tall*, *spiritual*) and the head nouns (i.e. *man*, *wealth*) establish a modification structure. As argued by Sullivan (2013: 3), the meaning of words thus depends not only on the selection of words, but also on a particular grammatical construction.

While the fact pointed out above seems true, we know that words by themselves have their own meanings. Then, what are they? How can we understand and choose them every single time when we think of something, tell something to others, or even speak to ourselves? In other words, how a great number of meanings are stored in words? A key to answer these questions may reside in the notion of *frames*, which is advocated by Fillmore (1975, 1978, 1982, 1999). We will observe what *frames* are and how they are related to the present topic; the semantics of A-N expressions. The second important concept is *conceptual autonomy-dependence asymmetry*, which is proposed by Langacker (1987, 1991). This concept is crucial to identify which element is conceptually more dependent on the other, when we encounter the expressions consisting of at least two grammatical constituents (cf. *figure* and *ground*, *profile* and *base*, *trajector* and *landmark*). As argued by Sullivan (2013), the conceptual autonomy and dependency should work well in the framework of construction-based grammar. Finally, *Construction Grammar* (Fillmore et al. (1988), Goldberg (1995, 2006), Fillmore and Kay (1997), Fillmore (1999), Kay and Fillmore (1999), Croft (2001),

Jackendoff (2013), Hilpert (2019)) will be succinctly outlined and its core idea will be explained in relation to the present topic.

2.3.1. Frames and Frame Semantics

The notion of *frames* was first introduced by Fillmore (1975, 1978). Let us see what they are and how they can be understood, taking the English verb *buy* as an example (cf. Ungerer and Schmid (1996: 206)). For example, consider a situation in which a person A has money and another person B owns some goods that A wants. When these two people agree on the price of the goods, A gives some money to B and obtains the goods that B has, while B gives the goods to A and gains some money from A. The final state is that A has the goods and B has some money. Conceiving this situation, we can say that the action or event that has happened between A and B is clearly BUY,[11] and this is exactly a frame. It can be confirmed that at least the following four different participants are involved: BUYER, SELLER, GOODS, and MONEY. In sentence (21), for example, all the four participants evoked by the frame BUY appear respectively in a different syntactic slot: BUYER (*David*), GOODS (*old shirt*), SELLER (*John*), MONEY (*ten pounds*).

(21) David bought an old shirt from John for ten pounds.

(Ungerer and Schmid (1996: 206))

The participants evoked by BUY are considered *roles* because each does not have any concrete entity by itself, but it only tells us that there are some people and things that have those roles. In specific situations or instances of BUY, these roles can be filled by the identity of the BUYER, GOODS, and so on. In (21), for example, *David* fills the BUYER role in the BUY frame.

[11] Frames are indicated conventionally and typographically by small capitals.

Moreover, according to the choice of other different verbs which guarantee the relation amongst these four participants, the possible grammatical relation is not limited only to the case in (21). For example, choosing the verb *sell* as in (22a) allows us to refer to SELLER as a grammatical subject, GOODS as an object, and BUYER as an indirect object. The verb *charge* in (22b) refers to SELLER as a subject and BUYER as an object. The verb *pay* in (22c) refers to BUYER as a subject, MONEY as an object, and SELLER as an indirect object.

(22) a. John sold an old shirt to David for ten pounds.

b. John charged David ten pounds for an old shirt.

c. David paid ten pounds to John for an old shirt.

(Ungerer and Schmid (1996: 207))

An online project called the FrameNet (2012)[12] project, which is based on the collected data from the British National Corpus (BNC) describes semantic frames as "a description of a type of event, relation, or entity and the participants in it". As claimed by Sullivan (2013: 18), "many words are interpretable only if we have some kind of access to frames and their elements". In other words, when we understand any information about situations, objects, or events by lexical items, we also need to understand the actual situations, objects, or events that lexical items denote. Each frame (e.g. BUY) essentially includes some frame elements (e.g. BUYER, PRODUCTS, SELLER, MONEY). The frames and certain relations between the frame elements underlie words (i.e. *buy*). Following Sullivan's (2007, 2013) illustration and the FrameNet (2012), we can depict the frame evoked by *buy* shown in Figure 2.1 below.

[12] FrameNet (2012) is a project which builds a lexical database of English. This is known as the frame-based corpus data that is established by a project directed by Charles Fillmore at the University of California Berkeley. https://framenet.icsi.berkeley.edu/fndrupal/

COMMERCE_BUY frame (evoked by *buy*)

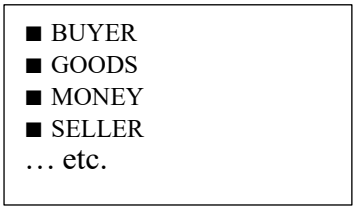

Figure 2.1. The verb *buy* evokes the COMMERCE_BUY frame[13]

(based on Sullivan (2013: 19))

2.3.2. Construction Grammar

A constructionist approach towards language has been taken so far by many scholars such as Lakoff (1987), Goldberg (1995, 2006), Kay and Fillmore (1999), and Croft (2001). Although we will not review their studies here, we will briefly overview what Construction Grammar is and then discuss Sullivan's (2007, 2013) construction-based grammar approach to metaphoric language.

Although there seem to be some ways of capturing the Construction Grammar theory, they can be reduced to one core idea that all linguistic structures generating 'non-compositional' form and/or meaning are *constructions*. They include lexical items and many kinds of grammatical structures to be stored in the lexicon. Therefore, lexical items, morphological processes, and syntactic configurations are all referred to as *constructions*, regardless of their size as grammatical components. In some grammatical constructions, there are structures traditionally called 'syntactic phrases' (e.g. nominal phrases). For Sullivan (2013: 19), the status of constructions as phrases or non-phrases is not important and she will not distinguish between them.

There is another important unit called *constructs* which are compositional constructional uses. Kay and Fillmore (1999) explain that, constructs, unlike constructions, do not contribute

[13] Note that the COMMERCE_BUY frame is a specific frame which is listed in the FrameNet (2012).

to produce a new combinatory unit of form and meaning. For example, the combination of an adjective and a noun, *obese cat*, is a construct. The adjective *obese* and the noun *cat* respectively are inserted compositionally into the constructional meaning of the attributive modification construction. If the construct *obese cat* were to establish a special meaning over time, it could become a construction; namely, it could be an idiomatic expression like *fat cat* 'wealthy men' (cf. Sullivan (2007: 20)). Note that generative grammarians do not regard constructions as playing a role in the grammar of a language. For them, constructions are merely simple forms that can be filled by lexical items, whereas cognitive grammarians assume that each construction has its own unique semantics. The construction-based theory argues that the mere juxtaposition of words does not give us the entire meaning as a unit. Specifically, in the case of juxtaposition, the meaning can only be found in each grammatical component: a modifier and a head.[14] Therefore, we need a constructional perspective. A construction, regardless of its size (i.e. word, phrase, sentence, or even discourse, as analysed by Östman (2005)), consists of a paring of form and meaning. The mere juxtaposition of words and their basic meanings thus function well if they are combined or embedded in a more meaning-oriented construction.

In terms of the relationship between the two grammatical components, this kind of perspective, however, is not special; rather it seems to be a quite common view. For example, generative syntax assumes many invisible functional heads and they effectively combine at least two grammatical components based on some rules or under some conditions. Cognitive grammar, as envisioned by Langacker (1987, 1991), suggests a *schema* (cf. *image schema*) which is an abstract representation and is considered a way of relating the meaning of two concepts represented by different words. Thus, for example, as argued by Fauconnier and

[14] However, there some languages where juxtaposition works well and actually distinguishes the meaning established by this simple operation without any morphological markers (e.g. Tagalog). For more explanation, see Nikolaeva and Spencer (2020).

Turner (2002, 2003), the *generic space* in their Mental Space model is a kind of schema in Langacker's sense.

Along these lines, Sullivan refers to metaphoric language as consisting of a set of various types of constructions and attempts to investigate the very nature of metaphor in relation to non-metaphoric language.

2.3.3. Conceptual Autonomy-Dependency Asymmetry

Finally, there is a key concept underlying grammatical constructions. Langacker (1987: 235–236, 309–310; 1991) explains that when a grammatical construction combines two structures, one of them will typically be dependent and the other autonomous; namely, there is normally an asymmetrical relationship between these two component structures (cf. Sullivan (2013: 8)). He further argues that "the distinction between conceptually autonomous and dependent predications is crucial for characterizing a number of important grammatical notions" (Langacker (1987: 308)). Concerning A-N relationships, adjectives are relatively dependent, whereas nouns are autonomous. This idea is convincingly explained by Sullivan (2013: 9) as follows: "it is difficult to perform any cognitive work, such as reasoning or visualisation, with only a dependent element, but it is unproblematic to do so with only an autonomous element". For example, observe the following A-N expressions below:

(23) a. obese cat (Sullivan (2007: 8; 2013: 9))

b. tall man (Sullivan (2007: 40–46; 2013: 29–33))

In the phrase *obese cat* in (23a), the noun *cat* can be considered an autonomous element in relation to the adjective *obese* because it is obviously possible to conceptualise a cat without considering its weight. The adjective *obese*, on the other hand, can be a dependent element

because its meaning relies on the conceptualisation of an animate object that indicates the quality of obesity (Sullivan (2013: 9)). This conceptual autonomy-dependence asymmetry is the same with the phrase in (23b): *tall* is a dependent element and *man* is an autonomous element.

More specifically, a dependent element has a substructure such as a thing or person capable of being *tall*. When this substructure is filled in or *elaborated* by an autonomous element, it comes to be an *elaboration site* (Langacker (1987)). When the elaboration site is a substructure of the dependent element and the autonomous element elaborates this within the dependent element, the former will be conceptually dependent while the latter is conceptually autonomous. This criterion, though, is not absolute but gradient, as he explains: "conceptual autonomy and dependence are ultimately matters of degree, but in canonical instances of grammatical valence there is a fairly clear asymmetry" (Langacker (2002: 170)).

Interestingly, Sullivan (2007, 2013) argues that the conceptual autonomy-dependence asymmetry can be represented by using frames in more detail. If Langacker's terms and concepts are translated into frame semantics, the *elaboration site* corresponds to a frame including some frame roles. In this case, the autonomous element as a filler gives a value to the frame role. For example, in *tall man*, the adjective *tall* evokes the MEASURABLE_ATTRIBUTES frame, in which the frame roles are ENTITY, DEGREE, CIRCUMSTANCE, TIME, etc (cf. FrameNet (2012)). The noun *man* in this case functions as an autonomous element and gives a value to the ENTITY role in the frame evoked by *tall*. Let us confirm this in Figure 2.2 below.

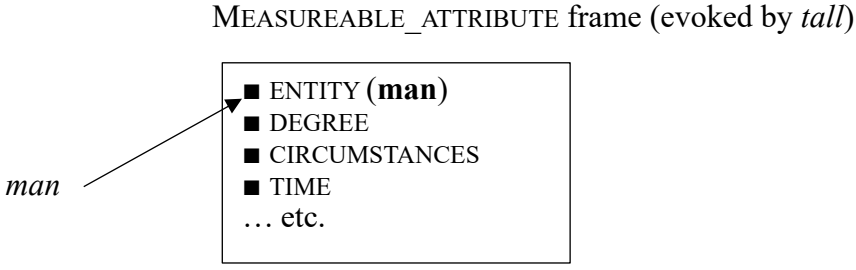

Figure 2.2. The adjective *tall* in *tall man* evokes the MEASURABLE_ATTRIBUTES frame (cited from Sullivan (2013: 31))

We notice, based on Figure 2.2, that *man* is conceptually autonomous relative to *tall* because frames and frame roles show the source of a possible relationship between autonomy and dependence. More specifically, we can say that the frame structural relation between *tall* and *man* is achieved by inserting *man* as a filler to the ENTITY role. Further, other adjectives which evoke a certain degree or measure relative to the norm, such as *thick*, *heavy*, *big*, *deep*, *high*, *long*, and so on, also evoke the same frame as that of *tall* (i.e. MEASURABLE_ATTRIBUTES, FrameNet (2012)). Namely, these predications need not be differentiated from each other, because frames and frame roles are generally schematised in this way. As a non-metaphoric (i.e. literal) case, I will refer to this frame relationship between an adjective and a noun as 'frame evocation'.

On the other hand, as pointed out by Sullivan (2013: Ch. 5.2), there is a case in which the conceptual autonomy-dependence asymmetry can be reversed. For example, observe the examples in (24).

(24) a. academic job (Sullivan (2013: 69–70))

b. rural policeman (Sullivan (2013: 65))

Apart from the case of (23), the adjectives *academic* and *rural* in (24) can be considered

conceptually autonomous elements because they can be more semantically salient rather than their head nouns *job* and *policeman*; namely, the nouns are conceptually dependent elements. In other words, the adjectives in (24) refer to a subcategory of a type of noun, not a quality of a particular *job* or *policeman*. Indeed, in comparison to the case of (23), as argued by Sullivan (2013: 9), we can recognise that "a dependent element presupposes the existence of an autonomous element, and that the meaning of the dependent element varies depending on the choice of an autonomous element". In the case of *academic job*, for example, because of the reverse of conceptual autonomy-dependence asymmetry, we can obtain the following picture of frame evocation.

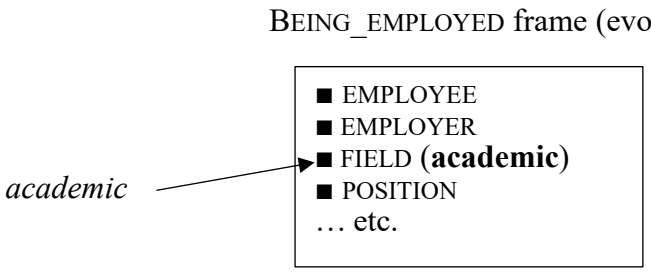

Figure 2.3. The noun *job* in *academic job* evokes the BEING_EMPLOYED frame (cited from Sullivan (2013: 69))

Because the adjective *academic* is an autonomous element in Figure 2.3, it is different from the case of *tall man* in that the head noun *job* in fact evokes the frame BEING_EMPLOYED and *academic* fills in the FIELD role.

Accordingly, the conceptual autonomy-dependence asymmetry can be represented with frames. A dependent element in a grammatical construction evokes a frame and its elaboration site corresponds to a frame role, whereas an autonomous element in a grammatical construction is a filler for the frame role and elaboration is the autonomous element itself. In this way, the relationship between autonomy and dependence can be accurately captured in a frame semantic

terminology as well.

2.4. Two Types of A-N Constructions

In this section, based on the terms and concepts discussed in the previous sections, we will investigate how Sullivan (2007, 2013) applies them to A-N constructions. Her main argument is that there are in fact two types of constructions in A-N expressions (i.e. *predicating modifier construction* and *domain construction*). Before stepping into the case of metaphoric A-N expressions, we should begin by observing that of non-metaphoric (i.e. literal), so as to understand how Sullivan refers to the relevant A-N expressions as 'constructions'.

This section proceeds as follows. First, we will observe how non-metaphoric A-N constructions can be divided into two types with respect to *modifier-head relation*. What we should focus on here is the combination of 'Adjective + Noun' as a whole, because the relationship between them as a construction functions in language, regardless of whether it is a phrase or word. Then, we will turn to the case of metaphoric A-N expressions and observe this in detail. After this, we will observe how cognitive mechanism, specifically, 'frame mapping' in metaphoric A-N constructions work. As I mentioned earlier, we will then evaluate how Sullivan's framework is effective and reasonable in terms of generalisability. Furthermore, I argue, in terms of generalisability, that Sullivan's approach towards metaphoric language can be extended not only to various types of metaphoric constructions but also metonymic or peculiar modification constructions that are investigated particularly in later chapters.

2.4.1. Non-Metaphoric A-N Constructions

This section deals with non-metaphoric A-N constructions and how they are understood and formalised based on the integrated framework introduced in the previous sections. Let us

first observe the following pair of expressions that consist of a non-metaphoric A-N construction, as in (25a), and its corresponding construction, as in (25b).

(25) a. a beautiful princess

b. a princess who is beautiful

(Sullivan (2013: 7), cf. Levi (1978: 3))

The adjective *beautiful* in (25a) is considered to predicate a property of the subsequent noun *princess*. Interestingly, the A-N *beautiful princess* has a counterpart construction as in (25b), which is known as a relative clause construction. This means that *beautiful* has an ability to appear in predicate or post-copula position. Sullivan refers to this type of construction consisting of a predicating adjective and a noun as a *predicating modifier construction* (2013: Ch. 5.3). However, this cannot apply to the following A-N construction.

(26) a. an electrical engineer

b. * an engineer who is electrical

(Sullivan (2013: 7), cf. Levi (1978: 3))

The adjective *electrical* in (26a) cannot appear in predicate position as in (26b), which is indicated by the ungrammatical marker '*'. In this type of construction, in fact, the adjective does not predicate a property of the noun. This type of adjective is thus called *non-predicating adjective* (Levi (1975, 1978)). *Electrical* as a non-predicating adjective indicates a subcategory of engineers, not a quality of a particular engineer. In other words, the function of non-predicating adjectives is to 'classify' a type of noun (cf. Warren (1984), Shimamura (2014)), so this implies that there are other types of engineers such as *mechanical engineer*,

chemical engineer, *sanitary engineer*, and so on. If we attempt to obtain a proper counterpart construction for *electrical engineer*, it can be *an engineer of electrics* (Sullivan (2013: 69–70)) (cf. *academic job*; *the job of academy*, **the job which is academy*). Accordingly, Sullivan refers to this type of construction consisting of a non-predicating adjective and a noun as a *domain construction* (2013: Ch. 5.2).[15]

In this way, A-N constructions can be divided into the following two types.

(27) Two types of A-N construction

a. Predicating modifier construction (e.g. *obese cat*, *beautiful princess*)

b. Domain construction (e.g. *electrical engineer*, *academic job*)

As Sullivan (2013: 7) argues, these two constructions "must be treated as distinct constructions, as opposed to simply constructs involving distinct types of adjectives, because the relationship between modifier and noun is fundamentally different in these two types of construction". She further strongly contends that "these differences cannot be attributed to the semantics of the modifier alone and must be considered part of the constructional meaning" (Sullivan (2013: 7)). In other words, the semantic patterns in A-N non-metaphoric expressions are constructionally determined by the relationship between the adjective and the noun.

Recall the conceptual autonomy-dependence asymmetry here. As we have observed in

[15] The term 'domain', as Sullivan (2013: 7) notes, seems first to be attested in Ernst (1984, 2001) and Sweetser (1997). As claimed by Ernst (2001: 261), domain expressions function as restricting a set of events. For example, domain adverbs such as *economically*, *politically*, *morphologically*, and *telepathically* represent "pragmatic domains" (cf. Ernst (1984)) or "'dimensions' with respect to which a predicate is interpreted" (Ernst (2001: 260)). As clearly stated by Ernst (2001: 282), since domain adverbs are "not predicational (not being gradable)", they do not evoke certain comparison classes and cannot be interpreted like manner adverbs such as *loudly*, *intelligently*, and *suddenly*. We will follow Ernst's and Sullivan's discussions and basically employ the term 'domain' for the adjectival class (e.g. *economic*, *political*, *morphological*, *telepathic*) in this thesis. In addition, adjectives that do not have certain specific adverbial forms such as *-en* adjectives (e.g. *wooden*, *woollen*, *silken*) and suppletive forms (e.g. *lunar*, *marine*, *canine*) are also included in this class because of their similar characteristics to the domain. These adjectives are treated in detail in Chapter 5.

the examples of *obese cat* and *tall man*, predicating modifier constructions can be applied to these cases, too. Let us observe how this can be represented in the following:

(28) Predicating modifier construction: $A_{[dependent]}$-$N_{[autonomous]}$ relation

a. obese cat 'a cat that is obese' (= (23a))

b. beautiful princess 'a princess who is beautiful' (= (25))

Both adjectives in (28) can be considered conceptually dependent elements, and the nouns autonomous elements. This is due to the adjectives' predicating function because predicating something, essentially, cannot be achieved unless we can identify the referent of a noun.

Sullivan (2013) pays close attention to Langacker's explanation of where the autonomous-dependent asymmetrical relations are 'relatively' determined. Given this, in some A-N expressions, she suggests that the relationship between adjectives as dependent elements and nouns as autonomous elements can be reversed, i.e. there is a case where adjectives are autonomous elements whereas nouns are dependent elements. Under this specification, the autonomy-dependent relation between adjectives and nouns in domain construction is reversed as follows:

(29) Domain construction: $A_{[autonomous]}$-$N_{[dependent]}$ relation

a. electrical engineer 'the job of academy' (= (26))

b. academic job 'the job of academy'

In comparison to the examples in (28), both adjectives *electrical* and *academic* in (29) do not predicate the subsequent nouns. As in the case of *electrical engineer* in (29a), *academic job* in (29b) refers to a kind of job contrasted with others such as *political job*, *medical job*, or

financial job. This is attributed to the non-predicating adjective's 'classifying function'.

On the basis of the observation of the non-metaphoric case, we can capture the relation between predicating adjectives and the nouns, as summarised in (30).

(30) In predicating modifier constructions, the head noun is the autonomous element in the construction, while the adjective is dependent. In domain constructions, on the other hand, this conceptual relation is reversed; namely, the head noun is the dependent element, while the adjective is autonomous.

(cf. Sullivan (2013: 64), Langacker (1991))

The most significant work achieved by Sullivan is that the distinction in A-N constructions can be applied even to metaphoric cases. She then generalises her analysis and strongly argues that metaphoric language does not exist *per se*, but they derive from the same construction-pattern of non-metaphoric language. Let us observe in the next section how this argument is made.

2.4.2. Metaphoric A-N Constructions

First, let us observe the following metaphoric A-N constructions, in which the adjectives still predicate a property of the nouns.

(31) Predicating modifier construction

a. bright student[16] 'a student who is bright'

[16] The corresponding Japanese of *bright student* is not *akaru-i gakusei* (bright student) 'cheerful student', but may be the following expression.

(i) sono gakusei-wa amerika-bungaku-ni akaru-i.
DET student-TOP American-literature-DAT bright-I

b. blood-stained wealth ‘the wealth that is blood-stained’

(Sullivan (2013: 63–64))

The example of (31a) means ‘a student who is intelligent’, and that of (31b) means literally ‘the wealth obtained immorally’. We may notice here that both adjectives appear in predicate position within each relative clause, even though they denote metaphoric meanings. Furthermore, in terms of the conceptual autonomy-dependence relation, the adjectives can be considered dependent elements because both head nouns can be interpreted in a literal manner. These expressions are thus also considered to be instances of predicating modifier construction. We can describe all the information that we have obtained so far schematically, taking *bright student* as an example.

(32) Predicating modifier construction

Linear order :	*bright*	*student*
	|	|
Conceptual relation:	dependent	autonomous
	|	|
Syntax:	A (predicating)	N

(Sullivan (2013: 77), with slight modifications)

The uppermost in the diagram in (32) represents the linear order of the example. The middle line shows the asymmetric relation between the elements. The very bottom designates the

‘The student knows a lot about American literature.’

In order to denote the same meaning as English *bright* ‘intelligent’ in metaphoric use, Japanese *akaru-i* needs to be used with the dative case *-ni*, as indicated in (i).

syntactic representation of adjective and noun. As insisted by Sullivan, the meaning of *bright* is determined by its relation to the noun *student* in a construction; thus, the predicating adjective is regarded as a dependent element, whereas the noun is an autonomous element. The adjective *bright* in (31a) predicates a property of the noun *student*, and the same is true of (31b); namely, the adjective *blood-stained* metaphorically predicates a property of the noun *wealth*.

We now turn to domain constructions in metaphoric language, as indicated in (33).

(33) Domain construction

a. mental exercise 'the exercise of mind' (cf. **the exercise is mental*)

b. spiritual wealth 'the wealth of spirit' (cf. **the wealth is spiritual*)

(Sullivan (2013: 63–64, 67–73))

The example in (33a) means 'the training of mind or brain' and that of (33b) means 'spiritual accomplishments'. Both adjectives in (33) cannot appear in predicate position because they are non-predicating adjectives. The conceptual relationship of A-N construction in (33) is reversed as we expect, and the other information can be schematically represented as in (34).

(34) Domain construction

Linear order:	*mental*	*exercise*
	|	|
Conceptual relation:	autonomous	dependent
	|	|
Syntax:	A (domain)	N

(Sullivan (2013: 66), with slight modifications)

From a semantic point of view, the adjective *mental* is not necessarily dependent upon the noun *exercise*. In other words, this adjective is semantically sufficient to be autonomous; thus, it can be conceptualised without depending on any other concepts. Repeatedly, the adjective straightforwardly classifies or identifies a type of the noun. In Sullivan's (2013: 65) sense, the adjective 'elaborates on a subcategory of the noun'.

In sum, as in the non-metaphoric case, the metaphoric case can be divided into two types of distinct constructions. This fact strengthens Sullivan's arguments that metaphoric expressions must pertain to non-metaphoric expressions. We will next observe how frame semantics (cf. Fillmore (1982)) work in these two types of constructions.

2.4.3. Frame Mapping in Metaphoric A-N Constructions

In metaphoric language, Sullivan (2013) argues what makes metaphoric language interpretable is the *mapping relations* between the semantic frames. This idea is obviously influenced by Lakoff and Johnson's (1980) Conceptual Metaphor Theory (CMT). Conceptual Metaphor Theory is a model of the conceptual structure of metaphors (cf. Lakoff and Johnson (1980)) and many conceptual metaphors are listed in the Master Metaphor List (Lakoff et al. (1991)).[17] Roughly speaking, metaphor occurs when conceptual structure from one domain is mapped onto another different domain. In this case, the more abstract conceptual domain (i.e. *target domain*) is mapped by the more concrete conceptual domain (i.e. *source domain*). Thus, conceptual metaphors are schematically represented using the format: *target domain is source domain* (e.g. ARGUMENT IS WAR, LOVE IS JOURNEY, GOODNESS IS LIGHT). As strongly argued by Sullivan (2013: 67), both the source and target domains are necessary for us to construe metaphoric expressions.

[17] The Master Metaphor List is the list that contains all the possible metaphors in English by Lakoff et al. (1991).

Regarding frame semantics, Sullivan explains that when frames are evoked, there are two types of evocations: *direct evocation* and *indirect evocation*. Direct evocation emerges when a word evokes a domain without evoking a specific frame within that domain, whereas indirect evocation emerges when a word evokes a specific frame, but not a domain directly, and then the frame evokes the domain of which it is a member. Let us observe these and clarify the interrelationship between the CMT and frame semantics. In doing so, we can specify the cognitive mechanism resided in these A-N constructions.

Sullivan proposes that even in a small construction such as A-N expressions, it denotes a certain metaphoric meaning, as the CMT predicts, and it can be understood by the frame elements in a target domain mapped by those in a source domain. To consider this in a more detailed way, let us consider the following examples again, *bright student* (predicating modifier construction) and *mental exercise* (domain construction) as the metaphoric A-N representatives of each distinct construction.

First, as we have already learnt, *bright student* instantiates a predicating modifier construction and *bright* is a conceptually dependent element while *student* is conceptually autonomous. As a predicating modifier construction, *bright student* first evokes the conceptual metaphor UNDERSTANDING IS SEEING.[18] In this metaphor, when *bright* evokes the LIGHT_MOVEMENT frame, in order to function as the source domain (i.e. SEEING domain) of the metaphor, it evokes the frame within the SEEING domain. Thus:

[18] Sullivan (2013: 80) explains that this metaphor can be considered a submetaphor of THE MIND IS A BODY, which is listed in the Master Metaphor List (Lakoff et al. (1991)).

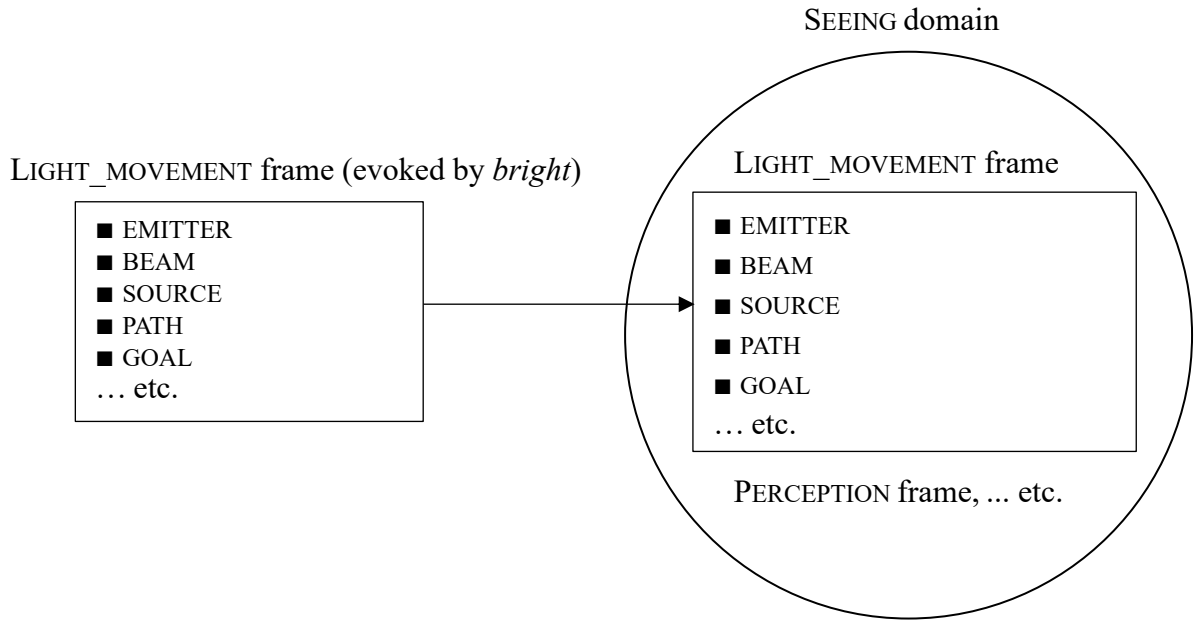

Figure 2.4. The adjective *bright* evokes the LIGHT_MOVEMENT frame and the SEEING domain (cited from Sullivan (2013: 80), with slight modifications)

In other words, *bright* indirectly evokes the SEEING domain via LIGHT_MOVEMENT frame. Similarly, *student* indirectly evokes the UNDERSTANDING domain as a target domain via the EDUCATION_TEACHING frame.[19] We do not see the details of *student*'s indirect evocation due to its similarity to the case of *bright*. We then draw our attention to the final mapped frame structure, which can be illustrated as follows.

[19] The EDUCATION_TEACHING frame includes STUDENT, TEACHER, SUBJECT, DEPICTIVE, and so on as their frame elements (see Sullivan (2013: 80–81 for more details)).

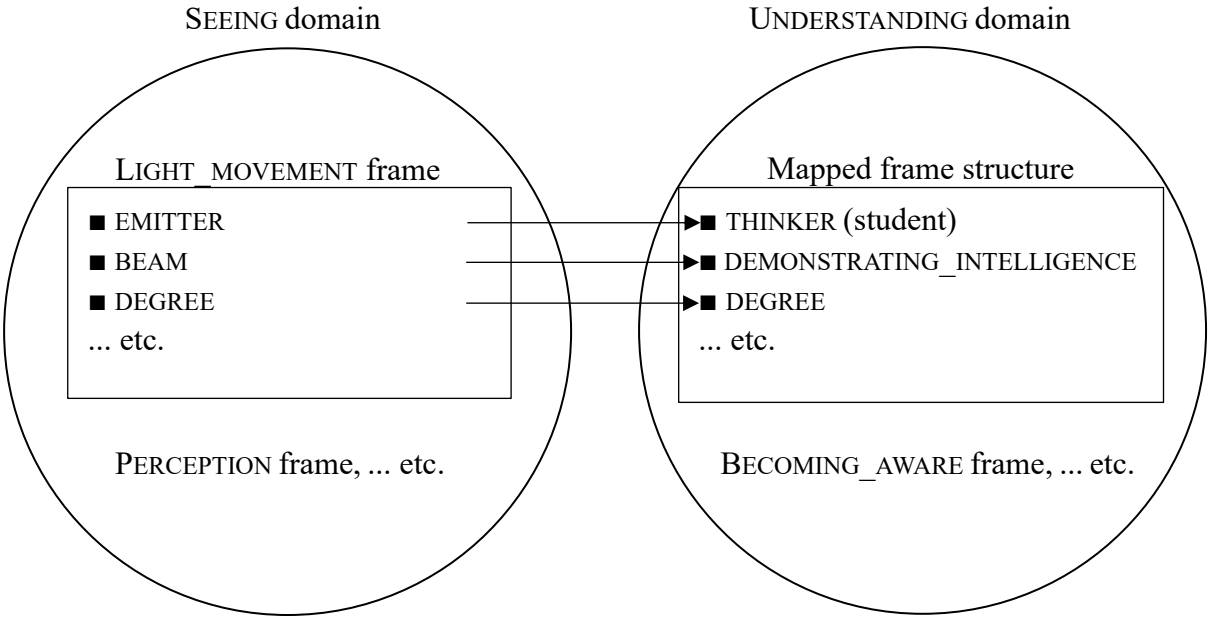

Figure 2.5. *Bright student* evokes UNDERSTANDING IS SEEING

(cited from Sullivan (2013: 81), with slight modifications)

In this way, the frame elements in the SEEING domain evoked by *bright* are mapped onto the corresponding frame elements in the UNDERSTANDING domain evoked by *student*. Both domains derive from indirect evocation and this is a typical pattern of metaphoric A-N predicating modifier constructions, as argued by Sullivan (2007, 2013). Importantly, unlike the case of non-metaphoric A-N predicating modifier construction (see Figure 2.2 and 2.3 in Section 2.2.3), the case of the metaphoric counterpart requires an appropriate conceptual metaphor, which is indicated by circles as domains, to achieve the proper frame mappings. Therefore, predicating modifier constructions usually involve indirect evocation of both domains. However, the situation varies in the case of domain construction, in which case evocation is more transparent and straightforward.

As we have observed earlier, in domain constructions, the adjective is autonomous whereas the noun is dependent. This conceptual pattern is the reversed version of predicating modifier construction and interestingly, the frame evocation is also quite different from it. For

example, *mental exercise* instantiates a domain construction and *mental* is a conceptually autonomous element while *exercise* is a conceptually dependent element. As a domain construction, *mental exercise* evokes the conceptual metaphor THE MIND IS A BODY (Lakoff et al. (1991: 80)). In this metaphor, the adjective *mental* directly evokes the MIND domain and it functions as the target domain of the metaphor without any other frame evocations like the case of predicating modifier construction (cf. Figure 2.4). Thus:

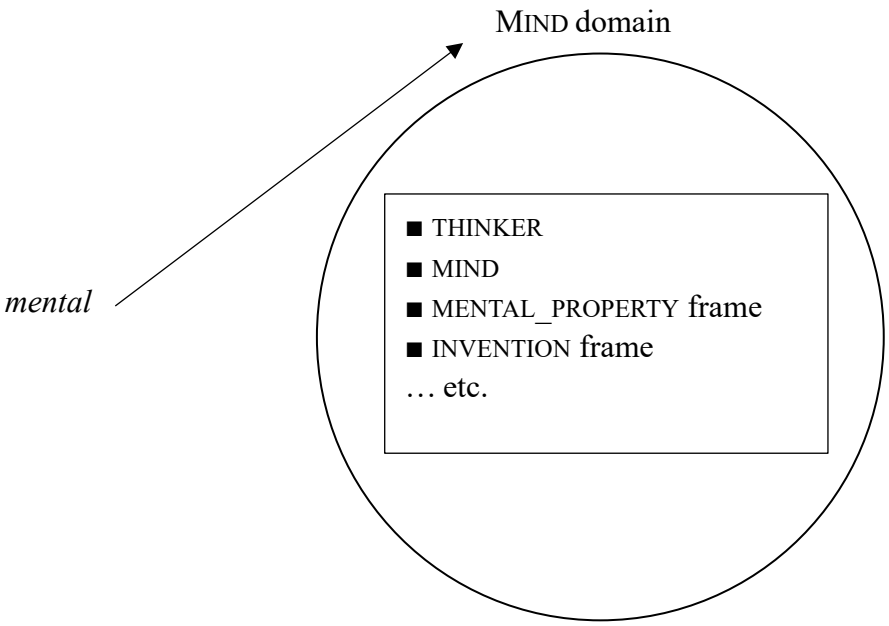

Figure 2.6. The adjective *mental* evokes the MIND domain

(cited from Sullivan (2013: 72), with slight modifications)

While *mental* evokes the target domain directly, *exercise* indirectly evokes the source domain (i.e. BODY domain), though we do not illustrate this here because it is quite similar to the case of Figure 2.4. We will illustrate instead the frame mapping between the domains as follows.

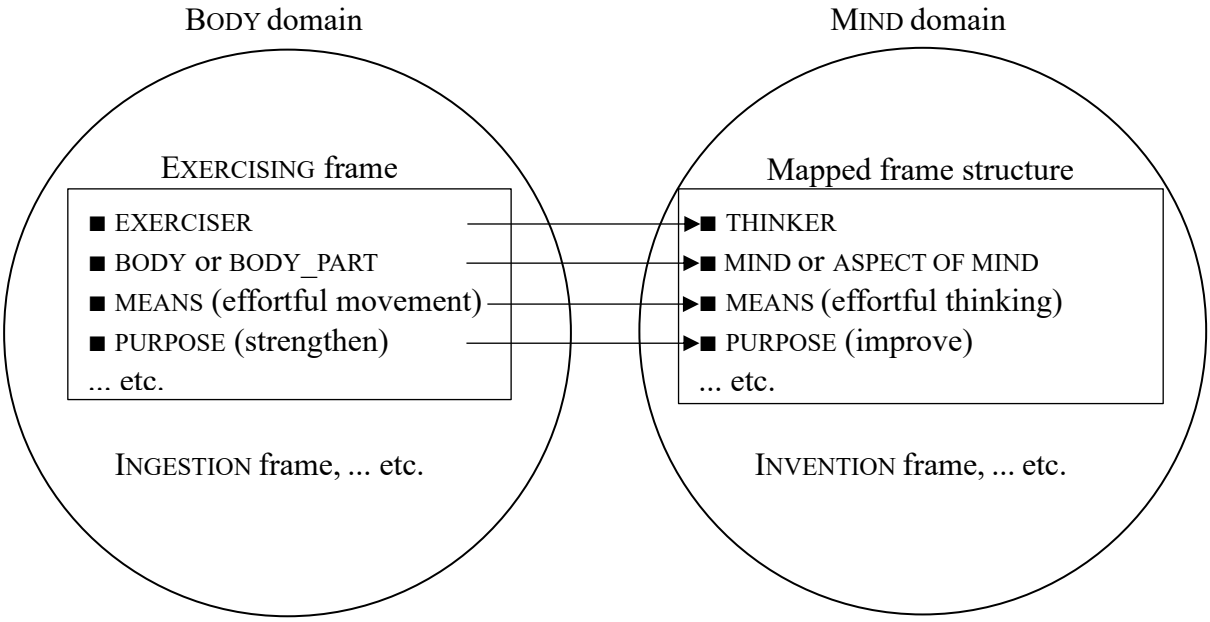

Figure 2.7. *Mental exercise* evokes THE MIND IS A BODY

(cited from Sullivan (2013: 72), with slight modifications)

To conceptualise *mental exercise*, as indicated in Figure 2.7, the conceptual metaphor THE MIND IS A BODY is necessarily activated. The target domain, however, directly corresponds to the adjective *mental*, whereas the source domain corresponds to the noun *exercise*. In Figure 2.7, the EXERCISING frame is evoked and then indirectly evokes the BODY domain (i.e. indirect evocation), while the MIND domain is directly evoked without evoking a specific frame within that domain, as observed in Figure 2.6 (i.e. direct evocation). Because of these different types of evocation, Sullivan (2013: 41) argues that "lexical items' frame evocation constraints the items' uses in metaphor".

2.4.4. Generalisability

We should begin by explaining the reason why I have decided to take Sullivan's approach. What she strongly argues throughout her book is that "metaphoric language makes use of the meaning structures present in non-metaphoric language" (Sullivan (2013: 171)). In order to

strengthen this contention, she integrates, from a cognitive linguistic perspective, the following three theoretical frameworks: (i) Conceptual Metaphor Theory; (ii) Frame Semantics; and (iii) Construction Grammar. We will not delve into them here but confirm that her unified approach to A-N expressions seems fairly reasonable. For example, as pointed out by Dunn (2015: 374), her theory shows the plausible generalisations to make 'testable predictions' (i.e. falsifiability). Bearing this in mind, let us see how Sullivan combines the above three theoretical frameworks into her original theory and what motivates her to insist that the internal structure of metaphoric language can be captured by metaphorical mappings and constructional types.

Dunn (2015: 374–375) explains that Sullivan's (2007, 2013) theory is quite strong in that it clearly shows the generalisations and 'testable predications'. I will point out the most important prediction, which is about how metaphoric language derives from non-metaphoric language based on the Conceptual Metaphor Theory (CMT), our frame knowledge, and the two types of constructions. As shown in the previous sections, the CMT's basic formula, *target domain is source domain* matches Langacker's Conceptual Autonomy-Dependence Asymmetry. Specifically, a grammatical component in the source domain is always a conceptually dependent element in the construction while that in the target domain is always a conceptually autonomous element, though their conceptual relationship is relatively determined. Interestingly, Sullivan further claims that these two theories precisely predict that there are actually two types of metaphoric A-N constructions and they derive from non-metaphoric A-N constructions while retaining non-metaphoric frame structures. If we attempt to formalise these, the following rough sketch can be obtained:

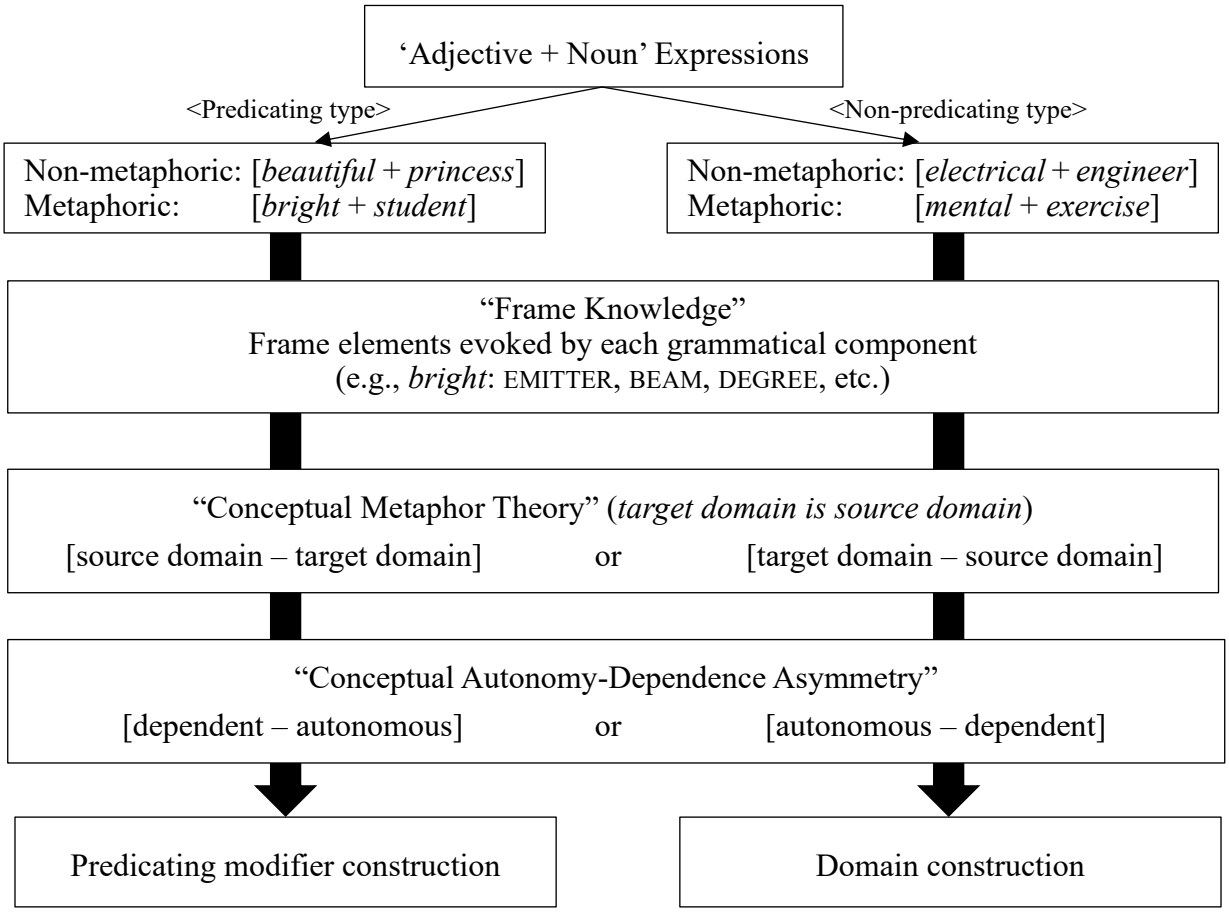

Figure 2.8. Conceptual process in two types of A-N construction

Possible interpretations of metaphoric language are actually constrained by non-metaphoric frame structure (i.e. the 'extended' Invariance Principle, cf. Lakoff (1993)).[20] As observed earlier, for example, the metaphoric phrase *brilliant idea* in fact evokes two conceptual metaphors possible: INTELLIGENCE IS LIGHT-EMISSION vs. HAPPY STATES ARE LIT LOCATIONS.

[20] Lakoff (1993: 215)) explains this principle as follows: "metaphorical mappings preserve the cognitive topology (that is, the image-schema structure) of the source domain, in a way consistent with the inherent structure of the target domain". In other words, metaphoric mappings are partial and preserve each frame relation, inference, and element. In addition to the principle, Sullivan (2013) includes the mapping relation of each frame element between the semantic frames. The Invariance Principle preserves "only a subset of the source-domain structure" (Sullivan (2013: 37)), thus in Sullivan's analysis, the principle is referred to as the 'extended' Invariance Principle (e.g. LIGHT element maps onto HAPPINESS element. Similarly, the other frame elements map onto the target frame elements: FIGURE to EXPERIENCER, LIT LOCATION to HAPPY STATE, and DEGREE (of brightness) to DEGREE (of happiness)). Due to the principle, metaphoric mappings must follow this rule to identify which frame elements in the source domain (LIGHT domain) map onto the target domain (HAPPINESS domain) in order for us to understand a given metaphoric expression.

However, in this case, only the first conceptual metaphor can be applied because *brilliant idea* does not mean *cheerful idea*, which pertains to the latter conceptual metaphor. In this way, Sullivan's theory predicts that possible interpretations are actually limited by preserving our frame knowledge, or more precisely, by preserving the frame structure. In other words, there is no special or unique frame structure in metaphoric A-N expressions, but it always derives from non-metaphoric expressions retaining the frame structures. Moreover, she analyses other grammatical constructions and generalise her theory with many kinds of metaphoric expressions such as argument structure constructions (e.g. ditransitive constructions, resultative constructions, equations), prepositional constructions (e.g., relational nouns in PPs, Event nouns in PPs), *xyz* constructions (e.g. *inflation is a remedy for economics ills*, *necessity is the mother of invention*), and beyond the clause-level constructions (e.g. relative constructions, conditionals, parallelism, negation, allegory).

This dissertation aims to show that Sullivan's theory can be further extended to non-metaphoric but metonymic or more semantically peculiar A-N expressions. Specifically, Sullivan's two types of constructions are in fact retained even when the components (e.g. 'true' referents or head nouns) in certain constructions are covert.

2.4.5. Summary

We have surveyed Sullivan's (2007, 2013) framework so far and it can be summarised as follows. First and foremost, metaphoric language is neither an independent nor a special linguistic phenomenon, but rather it essentially consists of the general mechanism of non-metaphoric (i.e. literal) language. This has been evidenced by the relation between metaphoric A-N constructions and non-metaphoric ones. Second, there are two types of A-N constructions, regardless of whether they are metaphoric or non-metaphoric: *predicating modifier construction* and *domain construction*. In the former construction, the adjective

predicates a property of the head noun in the construction, and functions as a conceptually dependent element with the noun as a conceptually autonomous element. In the latter construction, on the other hand, the adjective does not predicate a property of the head noun but subcategorises a type of the head noun, and functions as a conceptually autonomous element with the noun as conceptually dependent. Third, an adjective's meaning and function cannot be determined by themselves, even though they evoke many kinds of frames and function differently from nouns. Adjectives are necessarily dependent on the other grammatical components in a construction. Finally, although this is not mentioned by Sullivan, I argue that these two types of construction fundamentally maintained in any kinds of A-N expressions, even if there is no 'overt' element in the relevant construction. This implies that Sullivan's framework can be extended to some other types of A-N expressions that have been referred to as 'non-canonical', 'special', or 'peculiar' in previous studies. We will investigate those expressions in later chapters from a contrastive point of view (i.e. English and Japanese). We will find them neither non-canonical nor peculiar, whether in English or in Japanese. In this way, we can seek general principles in linguistic modification from investigation of peculiar phenomena. This point of view clearly follows the (heterogeneous) Construction Grammar perspective, and this is exactly what this thesis aims to do.

2.5. Redefining Terminology

In Sullivan's perspective, the combination of an adjective and a noun should be treated, not as a mere juxtaposition, but as a construction based on its adjectival function for the head nouns (i.e. predicating or domain-identifying). In order to apply her framework in a more effective way, we reinterpret her terminology here. While I keep referring to one of the constructions as *predicating modifier construction*, the other construction should be called *domain* '*modifier*' *construction* because this term also indicates the construction in which the

modifiers function as 'domain-identifying' in terms of the nouns. I also define them as follows.

(35) Two types of A-N construction

a. The predicating modifier construction is a type of A-N construction in which the adjective predicates a property of the referent designated by the noun.

b. The domain modifier construction is a type of A-N construction in which the adjective specifies the reference (i.e. semantic domain) indicated by the noun.

The reason why I change the term and supply some words for each construction type is that Sullivan's original terminology does not cover the modifying target of the respective adjective and specialises particularly in metaphoric versions of A-N expressions. This seems to be because the relevant adjectives in their constructions are basically dependent (i.e. nouns are also changeable about their conceptual relation between autonomous and dependent). However, by redefining Sullivan's terms in this way, one may not forget that the term *domain* is a 'name type' of adjective, while *predicating* is a 'function type' of adjective. In fact, *domain* and *predicating* are both functions of an adjective in a construction. Furthermore, each distinct constructional term in (35) makes us understand what each construction works with respect to the head noun. Finally, these terms are based not only on Sullivan's framework but also on the general mechanism of noun modification by adjectives in other different perspectives, which we have observed in previous sections. I suggest that these terms work well for some peculiar adjectival modifications and enable us to explore general principles governing 'peculiarity'.

In this dissertation, the concept *peculiarity* refers to some semantic and grammatical aspects of modifications where the semantics established by combining modifiers and head nouns seems apparently odd and unnatural. More precisely, it cannot be obtained by the

semantic composition of each construct (i.e. non-compositionality). I will thus focus on peculiar modification constructions and analyse their semantics from the perspective of how the following three components are concerned: (i) frame knowledge; (ii) context or discourse dependency; and (iii) the elements corresponding frames or discourse. We will first mainly investigate synaesthetic expressions, transferred epithets, and phrasal names in Chapter 3. The common characteristic of the expressions is that they are referred to as 'qualitative adjectives' in general. However, the predicating function is not overt in these cases; then the question arises as to why that is so. We will next in Chapter 4 take denominal adjectives when they occur in predicate position. The adjectives cannot normally be used in a predicative manner, but they can under some conditions. In this case, the classifying function is not visible; why, then, is that so? Lastly, we will focus on the constructional properties of denominal adjectives in English in Chapter 5. They are considered as a kind of 'mixed categories' in some respects because they frequently show both nominal and adjectival properties. All data taken in these chapters are concerned with the above components, though their relations are sometimes not transparent but quite complex. We will tackle the underlying 'covert' modifying mechanism throughout the dissertation.

2.6. Applications

The study of noun modification by adjectives including some peculiar modification phenomena has some theoretical implications for some linguistic fields. This section presents how a constructional account of A-N expressions contributes to other linguistic theories.

Frame semantics. The use of grammatical constructions is in fact quite sensitive to the knowledge of our language. As mentioned earlier in section 2.1, I argue, from a construction-based grammar perspective, that the 'mere' juxtaposition of words does not seem to be enough for understanding the meaning of language. There are indeed languages such as a number of

West African languages, Mande languages, Western Nilotic languages, or Mandarin Chinese, in which juxtaposition (including compounding) functions well, as discussed by Nikolaeva and Spencer (2020: Ch. 2.5.7 and Ch. 7). However, as pointed out by Noonan (1992: 115), "any contextually reasonable association between the compound elements" can be found. This seems to indicate that any kinds of juxtaposition, though they are apparently simple juxtaposition, we can associatively link the semantic components of the words. More intuitively, we can sense a certain semantic relationship denoted by the words. This general cognitive system of our association corresponds exactly to semantic frames. As explained in a more general sense by Fillmore (1982: 111), the term *frame* means "any system of concepts related in such a way that to understand any one of them you have to understand the whole structure in which it fits; when one of the things in such a structure is introduced into a text, or into a conversation, all of the others are automatically made available". The notion of frame in the early stage of Fillmore's works is used as syntagmatic frames in the description of lexical structure and this deployed into the case frame of a verb (e.g. Agent, Patient, Instrument, etc.) in Case Grammar. These case frames correspond to the small abstract descriptions of 'scene', 'situation', or 'script', which are necessary for schematising the situation underlying syntactic representations.

The study of grammar of noun modification by adjectives can maximise the view of frame semantics. The constructional patterns proposed here make it clear which construction is retained, even when the grammatical components are invisible on the surface representation. It is the frames that enable us to construe what the A-N combination denotes. When we face a semantically peculiar modification expression, we unconsciously optimise the possible frames for constructing the appropriate meaning of what the modification expresses. This dissertation can contribute to frame semantics by clarifying the way of construing the peculiar modificational expressions.

Cognitive Grammar. I will use some cognitive terms (e.g. *autonomy*, *dependence*, *frames*) in some points besides more general linguistic terms (e.g. *modifier*, *head*, *argument*, *complement*). In doing so, we can capture the present topic in a broader way and also give some new insights into the theory of Cognitive Grammar. Specifically, the Construction Grammar approach to peculiar modification expressions can be considered reasonable because it captures the fact that the basic two types of constructions (i.e. *predicating* and *domain* constructions) proposed by Sullivan are in fact retained in an implicit way. The motivation for this can be discussed by showing some pragmatic factors (including frames) and context-dependency.

Construction Grammar. As observed in the sections about Sullivan's analysis of metaphoric language, we cannot simply say that nouns always correspond to the source domain of one construction and a target domain in another (e.g. *wealth* in *blood-stained wealth* vs. in *spiritual wealth*). As strongly argued by Sullivan (2007: 16), "only a theory of grammar involving constructional meaning can account for these regularities". The new insights into the Construction Grammar theory in this dissertation is the generalisability of Sullivan's two types of A-N modificational construction. She contends that few of the generalisations about metaphoric language can be captured in the theory of generative grammar.

However, from a different point of view, it seems a little inappropriate to point out the weakness of generative grammar. My view of construction grammar is based on what generative grammarians have clarified. The hierarchical syntactic configuration of language reveals the fact that language establishes a quite complex but systematic and consistent structure on their own. In this sense, we 'know' language unconsciously under a certain number of rules (cf. descriptive grammar). What the theory of Construction Grammar aims to clarify does not seem to be so remote from this. As shown by Sullivan (2007, 2013), while the non-compositional meaning of metaphoric language can be best captured by the model of

Construction Grammar, it also attempts to investigate how the very mechanism of metaphoric language is established by that of non-metaphoric language. As a result, she clarifies the fact that the frame structure of non-metaphoric language is in fact retained even in metaphoric language. The present topic thus also contributes to the theory of Construction Grammar in the sense that it can take peculiar modification phenomena into account both syntactically and semantically.

Blending Theory. The notion of four mental spaces (e.g. two Input spaces, Generic space, and Blend space) in Blending Theory, which is mainly proposed by Fauconnier and Turner (2002, 2003), can be adequately applied to the present topic. For example, when an adjective is put into one space and a noun another, we need first to extract some common and general semantic frame elements and accumulate them in the generic space. Here, we obtain the crucial semantic essences shared between the adjective and the noun. Once we obtain this, based on the constructional patterns (i.e. predicating or domain), we then create the resultant A-N expressions, which are partially projected from the two inputs (i.e. adjective and noun). We will have recourse to Blending Theory in some points as needed. Blending Theory can capture unexpected and non-compositional expressions as 'blended' expressions. We will attempt to reveal the mechanism of how those 'blended' expressions can be constructed in a more substantial way. In this way, the present topic can be accounted for by elaborating on Sullivan's framework and our own analysis should work well along with what Blending Theory predicts.

Morphology. The constructional analysis of noun modification by adjectives is closely related to the field of morphology, which will be discussed in detail in Chapter 5. Sullivan's construction grammar approach towards A-N expressions is in fact already well established in Booij's (2010) model of Construction Morphology. This theory, as introduced by Masini and Audring (2019), allows us to account for both regular and irregular linguistic facts; namely, the

latter fact can include our current interest (i.e. a peculiar modification phenomenon).

However, I must point out some weak points following Masini and Audring (2019). First, Construction Morphology can be better for the analysis of word-formation but not for the treatment of inflection; more precisely, the agreement phenomena have not been tackled yet. This turns out to be the weakest point of this theory when considering how the grammatical constructs (i.e. inflectional words) in a construction is formally embodied from the lexicon depending upon the other grammatical constructs. Second, Construction Morphology cannot predict morphological 'productivity' in the sense that "how unification is constrained, thus preventing overgeneralisations" (Masini and Audring (2019: 399)). This point has long been debated in syntax and morphology. The final issue seems to be the formalism. The representations of meaning and phonological features must be refined in a more sophisticated way because we cannot precisely understand which formalism should be used for semantics, pragmatics, or discourse-functional information. Masini and Audring (2019: 388) thus suggest, for the semantics of morphology, that this theory should start with frame semantics or conceptual semantics (cf. Jackendoff (2011)).

Second Language Acquisition. English premodification may be one of the difficult topics for learners because of its complex semantic relations and rules. This implies that even if some pragmatic or discourse information is sufficiently provided, learners must store certain specific A-N constructions in their lexicon; otherwise, they cannot understand and use A-N expressions in an appropriate manner. Therefore, when we look at English as a foreign (or second) language, the theory of Construction Grammar may be helpful for learners. For example, just as the verb *give* can appear in two different transitive constructions such as the Caused-motion construction and the Ditransitive construction, so the adjective *beautiful* can function as either a classifying modifier or a predicating modifier. Learners of English as a second language must acquire these two distinct functions (i.e. constructions) of adjectives in

relation to the semantics of the head nouns via frame knowledge.

Along these lines, when considering the morphology of denominal adjectives in English, we will thus not use the theory of Construction Morphology but develop our argument based on a purely morphological theory, 'Word-Based Morphology' (cf. Spencer (2013)), which will be introduced in detail in Chapter 5.

2.7. Summary of Chapter 2

In this chapter, with regard to noun modification by adjectives, we have first overviewed what has been said in some different approaches such as those of syntax, morphology, semantics, and cognitive-functionalists. We have roughly compared them with our constructional framework (i.e., heterogeneous Construction Grammar) and attempted to give the reason for the applicability of Sullivan's (2013) construction-based approach. We have then outlined Sullivan's (2007, 2013) theoretical framework towards metaphoric language, A-N expressions in particular, and introduced her terms and related concepts (e.g. Frame Semantics, Construction Grammar, and Conceptual Autonomy-Dependency Asymmetry). We have further examined how effectively Sullivan (2007, 2013) integrates them into her analysis of metaphoric A-N expressions.

Importantly, Sullivan's (2013) two types of A-N constructions (i.e. the predicating modifier construction and the domain construction) have been redefined based on the observation of the general function of both adjectives and nouns in a construction. Such an attempt is necessary to clarify the very interpretive mechanism of other kinds of peculiar or marked A-N expressions and to make our analysis consistent. Let us observe how we have redefined them in what follows. One is called *Predicating modifier construction*, which has been defined as shown in (36).

(36) The predicating modifier construction is a type of A-N construction in which the adjective predicates a property of the referent designated by the noun. (= (35))

The following non-metaphoric and metaphoric expressions can equally function in this type of construction.

(37) a. Non-metaphoric: *beautiful princess*, *obese cat*, *tall man*

b. Metaphoric: *bright student*, *brilliant idea*, *blood-stained wealth*

In the expressions in (37), regardless of whether the expression is metaphoric or non-metaphoric (i.e. literal), the adjective functions as a semantic predicate for the head noun and it describes a property of the referent indicated by the noun.

The other is called *Domain modifier construction*, which has been defined as illustrated in (38).

(38) The domain modifier construction is a type of A-N construction in which the adjective specifies the reference (i.e. semantic domain) indicated by the noun. (= (35))

In this type of construction, as shown in (39), irrespective of whether the expression is metaphoric or non-metaphoric (i.e. literal), the adjective plays a role as a domain-identifying (i.e. classifying) modifier for the head noun and it typifies or identifies a subcategory of the noun.

(39) a. Non-metaphoric: *electrical engineer*, *academic job*, *rural policeman*

b. Metaphoric: *mental exercise*, *spiritual wealth*, *economic body*

Although we will not show the detailed explanation of frame mapping again here, Sullivan's two types of constructions clearly cover both metaphoric and non-metaphoric (i.e. literal) A-N expressions.

As can be inferred from the overview of Sullivan's analysis, such a constructional account of A-N expressions, regardless of whether they are metaphoric or literal, must have a high generalisability (cf. Dunn (2015)). On this basis, we will examine some peculiar or marked modificational phenomena in the following chapters and demonstrate that our general principle of A-N construction (see Chapter 1) is quite promising even for such extraordinary cases.

Chapter 3

Predicating Modifier Constructions:

An Apparent Semantic Peculiarity in Attribution

3.1. Introduction[1]

In this chapter, we will examine the semantically peculiar behaviour of predicating adjectives in attributive use. This chapter attempts to answer the following questions, which are repeated from Chapter 2.

(1) a. How do we interpret or construe semantically peculiar A-N expressions such as *bright taste* and what kind of linguistic factors are involved in their peculiarity?

b. What part of the nouns do the adjectives modify in this type of expression? How is this possible?

c. How do these A-N expressions differ from metaphoric or non-metaphoric ones?

By tackling these questions, we aim to clarify the semantic peculiarity of noun modification by adjectives; that is, we will analyse, while specifying the relevant crucial factors, the semantic relationship between predicating adjectives and the head nouns. We will then closely investigate how the predicating modifier construction, in which predicating adjectives essentially function, is related to this kind of peculiar modificational expressions.

It will be shown that our theory can bridge the gap between form and meaning in predicating adjectives. The main argument is simple: the 'true' modifying target of a predicating adjective does not appear on the surface, but it can be made explicit from the

[1] This chapter is a revised and extended version of Ishida (2018b, 2019a, b) and Ishida and Naya (2020).

relevant frame knowledge including contextual information. On the basis of our theory, the predicating modifier construction is retained even in such a semantically peculiar modification.

In Section 3.2, based on contexts, we carefully observe peculiar behaviours of predicating adjectives in the attributive modification. Specifically, focussing on English and Japanese cases, we examine the fact that the adjectives *per se* are predicating modifiers, but they cannot occur in predicate position due to the semantic conflict between them and the head nouns. On this basis, we then point out in Section 3.3 that the behaviours of such adjectives are the same as domain modifier adjectives concerning the following points: lack of predicability, adjacency to nouns, lack of gradability, and the function of domain modifiers. Section 3.4 provides an analysis of the peculiar behaviour of predicating adjectives based on Sullivan's (2013) construction-based account of metaphoric A-N expressions, which we have overviewed in Chapter 2. After this, we turn to our own analysis by extending Sullivan's theoretical framework. Specifically, we first observe a possible metaphoric interpretation of the expressions in question. We then reveal the fact that the relevant expressions could be considered domain modifier constructions on the surface; however, they are not. Adducing some significant evidence, we argue that the predicating modifier construction is, in fact, retained in this kind of expression in essence, which is made clear by the effect of 'metonymy'. We further examine the so-called 'Metonymous (or Beheaded) NP' phenomenon, which is advocated by Borkin (1984). The discussion can support and strengthen our arguments. Moreover, based on the argument of Nishimaki (2018), Section 3.5 discusses possible implications for the case of Japanese in particular. Section 3.6 summarises our analysis and its consequences.

3.2. Peculiar Behaviour of Predicating Adjectives

In this section, we will examine the peculiar behaviour of predicating adjectives in both

English and Japanese. As for the case of English in particular, we will discuss some other relevant expressions and investigate the similar semantic peculiarity of noun modification by adjectives.

3.2.1. The Case of English

First of all, we will observe how the English noun modification by predicating adjectives behave peculiarly in attributive use. Before discussing this, let us take up the examples in (2), which are repeated from Chapter 2.

(2) a. bright light

b. ?? bright taste

As pointed out in the previous chapter, the expression of (2a) is semantically natural, whereas that of (2b) shows a semantic conflict between the adjective *bright* and the head noun *taste*; specifically, *bright* denotes a *visual* sense in terms of the quality of light, while *taste* indicates a *gustatory* sense.[2] This kind of expression confuses us in that the semantic combination of each lexical item yields the sensory conflict. Since we do not normally express the sense of taste in terms of the quality of light, the different sensory combination of adjective and noun sounds odd. Thus, without an appropriate context, we cannot precisely comprehend what such a semantically marked expression actually means.

Let us then examine the expression in question, when it is embedded in the context as in (3).

[2] This kind of expression, in which the two words express different sensory meanings respectively, is called *synaesthetic expressions* or *synaesthetic metaphors* (cf. Ullmann (1957), Williams (1976)). We will treat this in detail in Chapter 6.

(3) Context: Describing an impression of the taste of meatballs[3]

The sweetness of meat and gravy. The sweetness of well-stewed onion is mixed. The slight sweetness of raisin can also be felt. Let's say…*bright taste*. This is the Sicilian taste, so it almost feels like I am in the Mediterranean.

In this context, *bright taste* can be interpreted as 'the taste of meal in a bright place like Sicily'. This interpretation is obtained because of the underlined expression (i.e. *This is the Sicilian taste*). Therefore, the context allows us to interpret *bright taste* appropriately. Keeping in mind this intended meaning of the expression, we will next examine the behaviour of the predicating adjective (i.e. *bright*). If the adjective is truly a predicating adjective, it can occur in predicate position; however, in comparison to the case of *bright light* in (4), this cannot be confirmed as shown in (5).[4]

(4) a. bright light

b. the light is bright

(5) a. bright taste 'the taste of meal in a bright place like Sicilia'

b. # the taste is bright

The predicative form of *bright taste* in (5b) cannot correspond to the intended meaning of the expression in (5a). Therefore, *bright* does not seem to predicate a property of *taste*. We

[3] This context is excerpted from the following Japanese website (i.e. *akaru-i azi* 'bright taste') and translated into English: http://sakakisinichiro.com/wp/blog/%E3%82%AA%E3%82%B9%E3%83%86%E3%83%AA%E3%82%A2%E3%83%8A%E3%82%AB%E3%83%A0%E3%83%A9/ [accessed in March 2018]. The translation is checked by Professor Robert Levine of Ohio State University.

[4] The mark '#' indicates that the relevant expressions cannot obtain the intended meaning based on contexts.

notice here that there is a gap between the form and meaning of the expression. The adjective *bright* is indeed classified as a predicating adjective as indicated in (4b); nevertheless, it cannot express a predicative meaning for the head noun. Similarly, the following expression also does not have a predicative counterpart construction.

(6) a. a sick room (Jespersen (1909–1949, II: 283))

b. # a room which is sick

The expression in (6a) does not indicate that the room itself is sick as in (6b), but rather, it means 'a room that has something to do with the sick' or 'a room for the sick people'. Jespersen (1909–1949, II: 283, 301) refers to the combination of the adjective and the noun in (6a) as *compositional adjuncts* (e.g. *yellow fever* 'fever that causes yellow discolouration', *infrared lamp* 'lamp that emits infrared rays', *a red lamp* 'a lamp which is red or a lamp which emits red light', cf. Yasui et al. (1976: 180)). Some scholars such as Bauer (2003: 135), Booij (2002: 314), Hüning (2010: 211), Shimamura (2014: 30), and Ghesquière (2014: 26) have drawn attention to this kind of expression, too.[5] We will treat this in Section 3.4 in detail. Another related example is represented as in (7).

(7) a. He was now smoking a *sad cigarette*. (Hall (1973: 92), italicising mine)

b. # the cigarette is sad

There is an awkward sequence of words in (7a): *sad cigarette*. As shown in (7b), this adjective-noun combination cannot also be predicative. The adjective *sad*, on the surface,

[5] This kind of expression has often been called "phrasal names" (Booij (2002: 314)). On the other hand, Ghesquière (2014: 26) refers to it as "compound N with specialised meanings". It includes other examples such as *hard disk*, *yellow pages*, *high school*, *whiter water*, *dry dock*, and *small talk*.

modifies the noun *cigarette*; however, this adjective does not usually modify inanimate nouns, since it designates an emotional state of a person. In this way, the modifier showing such a unique behaviour has traditionally been called *transferred epithet*, which is also known as a part of *hypallage* (cf. Ogawa (1954), Hall (1973: 92), Yasui et al. (1976: 177), Honda (2005: 54), Noro (2008)).[6] This phenomenon has been long studied as one of the rhetorical and stylistic devices. Pullum and Huddleston (2002: 558) recognise the considerable variation in the usage of transferred epithet and explain the common fact that the established adjectives do not apply literally to the head noun (e.g. *a drunken brawl*, *their insane cackle*, *a nude photo of the mayor*, *a quiet cup of tea*, *your own stupid fault*).[7]

As observed above, due to the semantic conflict between the adjective and the head noun, all the related phenomena in English cannot be used predicatively.[8] We have pointed out the following two peculiarities: (i) there is a semantic conflict (i.e. in a literal sense) between the adjectives and the head nouns; (ii) the adjectives cannot be used predicatively, though they are indeed predicating ones. We will now turn to the case of Japanese in the next section.

3.2.2. The Case of Japanese

It is interesting to note that unlike the case of English, in Japanese, the two modification patterns are implemented by different forms: in Bolinger's sense, referent-modification (i.e. an adjective predicates a property of the head noun) invoked by Adjective+Noun (A-N) *phrases*

[6] Satoru Kobayakawa (Dokkyo University, personal communication) and Robert Levine (Ohio State University, personal communication) point out that *transferred epithets* should be particularly relevant to the present topic.

[7] We will pay close attention to these related phenomena in Section 3.4.

[8] One may notice that the relevant expressions are, in fact, compounds; that is, they are a type of word and not phrases. In the field of morphology and syntax, the boundary between a word and a phrase is crucial. However, as observed in Chapter 2, our framework does not take this distinction into an account, because both of them are not different in that they are "modificational constructions". The more important point here is that, as advocated by Booij (2002), naming is a main function of words, but even phrases can be names. In many cases, in fact, phrases and words cannot be easily demarcated.

and reference-modification (i.e. an adjective identifies the semantic domain of the head noun) by A-N *compounds*. An A-N phrase and an A-N compound are not ambiguous in that the former has an intersective reading and the latter a non-intersective reading. For example, it has been widely acknowledged that the Japanese counterpart of the expression *a beautiful dancer*, *utukusi-i odoriko* 'beautiful dancer', has only an intersective reading, as shown in (8) (cf. Morita (2019: 92)).

(8) Olga-wa utukusi-i odoriko-da.
Olga-TOP beautiful-I dancer-be.PRES
'Olga is a beautiful dancer.' (i.e. 'Olga is a dancer and she is beautiful.')

The Japanese predicating adjective *utukusi-i* in (8) can only describe a property of the noun *odoriko* 'dancer'. In other words, it cannot identify whether *Olga* dances well or not, as in the case of English; namely, the expression in English is two ways ambiguous in reading (i.e. *Olga is a beautiful dancer*: (i) 'Olga is a dancer and she is beautiful' (intersective reading); (ii) 'Olga is beautiful as a dancer' / 'Olga dances beautifully' (non-intersective reading). This is because *utukusi-i* contains *-i*, a conjugational ending for non-past tense (see e.g. Tsujimura (2014: 131)), and the expression *utukusi-i odoriko* as a whole has the clausal status (i.e. the expression is the relative clause derived from a sentence like *sono odoriko-wa utukusi-i* (that dancer-TOP beautiful-I) 'that dancer is beautiful'). That is, the expression takes the form of predication and is thus interpreted only in terms of referent-modification canonically. Many previous studies have focussed on the adjectival modification *in phrases* as shown in (8) and argued that English and Japanese predicating adjectives have different interpretive patterns.

This, however, does not mean that Japanese predicating adjectives lack reference-modification. Nishimaki (2018) observes A-N *compounds* and claims that they evoke what

we call reference-modification here (cf. direct modification).[9] If so, in Japanese, two different forms, namely phrases and compounds, are responsible for referent-modification and reference-modification, respectively. This division can be demonstrated by the pair in (9).

(9) a. Referent-modification: huru-i hon (old-I book) 'a book that is old'

b. Reference-modification: huru-hon (old book) 'secondhand book, used book'

The two examples are similar in that they consist of the adjective *huru*(*-i*) 'old' and the noun *hon* 'book' but are formally different. *Huru-i hon* in (9a) is a phrase where the adjective ends in *-i*, and as with (8), the adjective serves as a referent modifier, yielding the intersective reading of 'a book that is old'. This status of *huru-i* in (9a) can be confirmed by its predicativity. Since the adjective predicates a property of the referent of its subsequent noun *hon*, the expression in (9a) can be paraphrased as in (10), where the adjective appears in predicate position.

(10) Sono hon-wa huru-i
DET book-TOP old-I
'the book is old'

On the other hand, *huru-hon* in (9b) is a compound which contains *huru*, the stem of the adjective *huru-i* 'old'. Remarkably, the compound *huru-hon* does not mean 'a book that is

[9] Nishimaki (2018) focuses on the morpho-syntactic aspects of (predicating) A-N expressions in English and Japanese and argues that an A-N compound in Japanese involves direct modification (see Sproat and Shih (1991)) and the adjective in it is a direct modifier of the noun, which evokes a non-intersective reading. Seen from a semantic perspective, the modifier plays the same role as a reference modifier. Note here that *direct modification* is the term for the *structural* relationship between A and N and the term *reference-modification* describes the *semantic* relationship between them.

old', but rather it means 'secondhand book' or 'used book'. Note that *huru*, in this case, identifies a type of book. In other words, it does not predicate a property of a book; unlike (9a), (9b) cannot be paraphrased as in (10). This is the same with the non-intersective reading, which is obtained via reference-modification. The discussion above leads us to conclude that in Japanese, the adjectival stem used in a compound functions as a reference modifier, identifying the semantic domain of the noun.[10]

In addition to compounds, we can find other forms of Japanese reference-modification in previous studies, though they are not adjectives. One example of such reference modifiers is formed by adding the genitive marker *-no* to a noun. This 'N + *-no*' form is indeed different from predicating adjectives, but this is another form of prenominal modifiers working as reference modifiers in Japanese. For example, *ki-no hasi* (wood-GEN bridge) 'wooden bridge'

[10] As pointed out by Naoaki Wada (University of Tsukuba, personal communication), one may argue that there are some A-N compounds that do have intersective readings, as exemplified by the (b)-examples in both (i) and (ii).

(i) a. huru-i ike [A-N phrase]
old-I pond
'a pond that is old'
b. huru-ike [A-N compound]
old pond
'a pond that is old'

(ii) a. atarasi-i iro [A-N phrase]
new-I colour
'a colour that is new'
b. sin-syoku [A-N compound]
new colour
'a colour that is new'

As can be noticed, although the (b)-examples are both compounds, their readings are the same as those of the (a)-examples (i.e. intersective reading). However, I claim that the (b)-examples can still indicate non-intersective readings such as *huru-ike* 'the pond is OF THE *old* TYPE' and *sin-syoku* 'the colour is OF THE *new* TYPE'. Then, why can these compounds still show intersective readings? A possible answer for this can be found in the 'temporal' meaning expressed by the adjectives, i.e. *huru-i* (old) and *atarasi-i* (new). Since these adjectives merely evoke certain time relevant concepts, even if the A-N combinations appear as compounds, such temporal adjectives can function as predicating some temporal properties of the head nouns (cf. *huru-i isu* (old-I chair) 'a chair that is old' vs. *huru-isu* (old chair) 'a chair that is old' / 'a chair is OF THE *old* TYPE'). Therefore, these adjectives can sometimes denote intersective readings even in compound forms. A more detailed study on this form-meaning relationship in Japanese morphology is required but we leave this for future research.

can be a typical case of this. *Ki-no* consists of the noun *ki* 'wood' and the genitive marker *-no*, modifying its subsequent noun *hasi* 'bridge'. Watanabe (2012, 2017) says that the *ki-no* 'wooden' semantically identifies a type of *hasi* 'bridge'. Thus, in the expression *ki-no hasi*, 'N+-*no*' is interpreted in a similar vein to the first element of a compound. In this sense, 'N+-*no*' is regarded as a reference modifier which identifies the semantic domain of the noun, as the first element of a compound does. Although 'N+-*no*' categorially differs from adjectives, they can be grouped due to their capability of nominal modification.[11]

We have discussed the canonical pattern of the interpretation of Japanese adjectives. To sum up, they take different forms according to their modification roles; in referent-modification, they take a phrasal form, and in reference-modification, they appear in a compound. In this sense, we can find a strong correspondence between formal characteristics and meanings. Moreover, it is no exaggeration to say that Japanese prenominal adjectives are not ambiguous between intersective and non-intersective readings in principle.

We now turn to peculiar cases. For example, we will pay particular attention to the following italicised expression in the context:

(11) Context: Describing an impression of the taste of meatballs

Akaru-i azi...todemo iimasuka. Korega Sitiria teki na azi nandatte omotte taberu to kimoti ga tyotto Tityuukai.[12]

(Let's say…*bright taste*. This is the Sicilian taste, so it almost feels like I am in the

[11] A different form of 'N+-*no*' is 'N + classifier + -*no*' (Nagano (2016), Shimada and Nagano (2018)). This is called an 'expanded modifier'. Expanded modifiers are 'formally expanded from genitive modifiers by the insertion of a bound marker of a specific semantic relation' (Nagano (2016: 54)). For example, *wheaten* of *wheaten bread* is translated into either genitive modifiers, as in *komugi-no pan* or expanded modifiers, as in *komugi-sei-no pan* in Japanese (The bound morpheme *-sei* (-製) is a specialized marker of the 'made-of' relation). Although expanded modifiers are reference modifiers, they can appear in predicate position, which appears to be problematic to their status as reference modifiers. See Chapter 4 for this issue.

[12] The context is the same as the one in (3).

Mediterranean)

The expression that draws our attention here is *akaru-i azi* ‘bright taste’, which is repeated in (12a). Given that the expression is not a compound and the adjective *akaru-i* is a predicating adjective, *akaru-i* is expected to be predicative. However, when *akaru-i azi* in (12a) is transformed into (12b), *azi ga akaru-i* ‘the taste is bright’ loses the intended meaning of (12a) and it does not make sense.[13]

(12) a. akaru-i azi
bright-I taste
lit. ‘the taste that is bright’

b. # sono azi-wa akaru-i
DET taste-TOP bright-I
lit. ‘the taste is bright’

The expression in (12a) cannot be interpreted because the semantic conflict between the adjective and the noun prevents the adjective from predicating a property of the taste. We can precisely interpret what the expression means based on the context it occurs in. The italicised *akaru-i azi* in (11) can be associated with the underlined expression *Sitiria teki na azi* ‘Sicilian taste’. Therefore, we interpret *akaru-i azi* to mean something like ‘the taste of meal in a bright region like Sicily’ in (12a). Note again that *akaru-i* ‘bright’ does not predicate a property of the taste; this interpretation cannot be obtained from (12b).[14] This unpredicability suggests

[13] Notice that *akaru-i* here should not be interpreted as metaphoric meanings such as ‘clear’, ‘fine’, or ‘strong’, because these meanings are not based on the context in (11).

[14] One might think that the adjective *akaru-i* is inherently a reference modifier. This is not the case, however, as indicated by the fact that it can be used predicatively when used with the noun *tuki* ‘moon’, for example:

that *akaru-i* in *akaru-i azi* does not behave like a predicating modifier for its subsequent noun, but rather it seems to be parallel to the behaviour of a reference modifier or a domain modifier in our terms, as will be shown in the next section. This peculiar behaviour of the adjective raises the question of why *akaru-i* in (12) cannot behave as a referent modifier, albeit a predicating adjective? That is, our interest lies in the gap between form and meaning in such expressions (i.e. the form of *akaru-i* is a predicating adjective but the meaning is no longer predicative) and in how we interpretively bridge its gap.

Before observing other peculiarities of the adjective in question, we should show other similar examples to make clear that the phenomenon represented by *akaru-i azi* is not sporadic but ubiquitous. Such examples are illustrated in (13).

(13)	a.	oisi-i {ondo/osirase}	lit. 'the {temperature/news} that is tasty'
	b.	samu-i koe	lit. 'the voice that is cold'
	c.	karu-i kusuri	lit. 'the medicine that is light (as weight)'
	d.	yasasi-i zikan	lit 'the time that is kind'
	e.	kawai-i okane	lit 'the money that is cute'

All the adjectives in (13) cannot be taken as predicating properties of the subsequent nouns. These expressions are also interpreted within appropriate contexts such as those provided below.

(i)	a.	akaru-i	tuki		'the moon that is bright'
		bright-I	moon		
	b.	tuki	ga	akaru-i	'the moon is bright'
		moon	NOM	bright-I	

Comparing (i) with (12), we can see that *akaru-i* is normally a predicating modifier but in *akaru-i azi*, it does not reflect its normal property.

(14) oisi-i ondo

a. Context: Describing a thermos bottle[15]

THERMOS: hin'yari *oisi-i ondo* o kipu! Mahoobin-koozoo no tanburaa.

(THERMOS Keeping cool and tasty temperature! The tumbler of flask bottle)

b. oisi-i ondo = 'the cool temperature of beverage in a tasty condition when drinking'

(15) oisi-i osirase

a. Context: Informing on a SNS[16]

Rinyuuaru sita Ion-Mooru Miyazaki kara, *oisi-i osirase* ga todokimasita yo.

(From the renovated Aeon-Mall Miyazaki, we have received tasty news)

b. oisi-i osirase = 'the news that has good information about tasty food'

(16) samu-i koe

a. Context: Describing the situation of refugees' lives[17]

Itetuku-youna samusa ni kogoeru nan'min-no hitobito no *samu-i koe* o mimi-ni sita.

(I heard the voice of refugees who are almost frozen with cold)

b. samu-i koe = 'the voice of refugees who are in freezing cold conditions'

[15] The context is retrieved from https://item.rakuten.co.jp/ra-beans/0675215/ [accessed in April 2020].

[16] The context is retrieved from https://ja-jp.facebook.com/umkpaburofu/posts/2014027701975944 [accessed in April 2020].

[17] This context is original.

(17) karu-i kusuri

a. Context: Describing an antidepressant drug[18]

Koo-Utu gusuri dewa, *karu-i kusuri* wa sayou mo huku-sayou mo karuku, ...

(An antidepressant drug with light efficacy and side effects is mildly efficacious...)

b. karu-i kusuri = 'the medicine with a mild efficacy'

(18) yasasi-i zikan

a. Context: Giving a message of the product 'Meltykiss'[19]

Kyoo-mo otukaresama. Merutii-kissu o hitotu. Kimoti mo issyo ni toroketeitte tiisana siawase ni tutumareru. Hirogatteiku *yasasi-i zikan*.

(Good job today. Have a Meltykiss. Then you will be surrounded by a little happiness. The comfortable time is increased.)

b. yasasi-i zikan = 'the peaceful and calm time'

(19) kawai-i okane

a. Context: A slogan of AEON Co., Ltd.[20]

Kawai-i okane, WAON. What is WAON, a lovely way to pay.

(Cute money, WAON. What is WAON, a lovely way to pay.)

b. kawai-i okane = 'a lovely way to pay money'

[18] The context is retrieved from http://www.akita-rehacen.jp/pc/column/cat1/id200.php [accessed in April 2020].

[19] The context is retrieved from http://www.moratame.net/wp/llabo/meltykiss_yuzu/ [accessed in April 2020].

[20] The context is retrieved from https://www.aeon.jp/aeon/iwaki/senmonten/info/waon/index.html [accessed in April 2020].

All the adjectives in the above contexts cannot be regarded as predicating modifiers because they do not predicate properties of the referents of the nouns, but rather, based on the contexts, they can be referred to as reference modifiers; namely, they identify the semantic domain of the noun (i.e. classifying a type of the reference of the nouns). These adjectives go against the conventional modification pattern of Japanese predicating adjectives. Given these many examples, such unconventional patterns are indeed semantically peculiar but should not be viewed as mere exceptions.

3.2.3. Summary

Having investigated the peculiar cases in both English and Japanese, we can say in general that the semantic peculiarity of noun modification by adjectives can be resolved by contexts. In other words, almost all the expressions in question have a context-dependent characteristic. Some of them have been already decontextualised and established as phrasal names, but the true modifying target of the adjectives are still not their head nouns; namely, the relevant adjectives are indeed predicating adjectives but they do not predicate a property of the head noun. Therefore, we have obtained the fact that the semantic peculiarity in noun modification by adjectives derives from the form-meaning gap of predicating adjectives. This can be paraphrased in our present framework as follows: the predicating modifier construction cannot be confirmed in the above examples.

Then, we should deal with the examples from a different angle. We have another type of construction introduced in Chapter 2: *Domain Modifier Construction*. We will examine in the following section how a modifier in this type of construction behaves.

3.3. The Characteristics of Domain modifiers

We have examined, regarding predicability, the peculiar behaviour of English and

Japanese predicating adjectives in question. This section further observes their peculiarities about the following two points: (i) adjacency to the noun; and (ii) lack of gradability. We will examine both English and Japanese examples in (20). Note that both expressions should be interpreted based on the context in (3); that is, they mean 'the taste of meal in a bright region like Sicily'.

(20) a. English: bright taste

b. Japanese: akaru-i azi 'bright taste'

On the basis of the syntactico-semantic behaviours of the relevant expressions, we further discuss the function of domain modifier adjectives in Section 3.3.3. Consequently, the relevant adjectives do not show the same behaviour as ordinary predicating adjectives, but rather they behave in much the same way as domain modifiers. We then assume that the predicating adjectives in question should be thought of as turning into domain modifier adjectives.

3.3.1. Adjacency to Nouns

The first property we examine here is related to the ordering restriction. The adjectives in question are required to be adjacent to the nouns that they modify, which is similar to reference modifiers but different from referent modifiers. This property can be observed in the examples where the relevant adjectives are used with other predicating adjectives in English and determiners such as *ano* and *sono* in Japanese (cf. Sproat and Shih (1991), Watanabe (2012, 2017)). Let us first observe the case of English in (21).

(21) a. small square table

b. * square small table

(Sproat and Shih (1991: 565))

Adjectival ordering in English is linked to semantic classes of adjectives (cf. Scott (2002)).[21] In (21), for example, the size adjective *small* must precede the shape adjective *square*. However, as pointed out by Sproat and Shih (1988) and Alexiadou and Wilder (1998), under some pragmatic conditions, the ordering can be reversed. Note that, in this case, some contrastive stress on the initial adjective is necessary for licensing a marked reading. For example, if someone needs to distinguish between the small table and large table that he or she owns, the adjectives *small* and *large* can be used as a classifier for the table. Thus:

(22) I've shown you my SQUARE small table. (cf. Sproat and Shih (1988: 470))

In comparison to (21b), *square small table* in (22) can be felicitous only under the interpretation that *small table* is regarded as a 'taxon' (i.e. a taxonomic unit) in the context of (22) (cf. Sproat and Shih (1988)). Also, as indicated by the capital letters, the shape adjective *square* must receive contrastive stress.

This condition can also be observed in the expressions in question. In the normal case

[21] As illustrated by Scott (2002: 114), the semantic hierarchy of attributive adjectives can be represented as follows:

(i) Determiner > Ordinal Number > Cardinal number > Subjective Comment > ?Evidential > Size > Length > Height > Speed > ?Depth > Width > Weight > Temperature > ?Wetness > Age > Shape > Color > Nationality/Origin > Material > Compound element > NP

However, there has been still controversy amongst linguists on what factor actually constrains ordering of adjectives or cross-linguistic (see also Givón (1970), Teodorescu (2006), Tokizaki and Inaba (2017, cf. Tokizaki and Kuwana (2014)), Davidse and Breban (2019), Kotowski and Härtl (2019)).

(i.e. without context), the origin adjective *Sicilian* (i.e. non-predicating adjective (NPA)) must be adjacent to the head noun *table* as in (23a). Again, (23b) can be appropriate only when *small table* is already established as a taxonomic unit.

(23) a. small Sicilian table

b. * Sicilian small table

(cf. Sproat and Shih (1991))

The adjective *bright* behaves like an NPA, as illustrated in (24); that is, *bright* must be adjacent to the noun. The unmarked ordering in (24b) is in this case infelicitous for obtaining the intended reading.

(24) QA-[bright]-taste vs. #[bright]-QA-taste

a. sweet bright taste 'the taste of meal in a bright region'

b. # bright sweet taste

In the case of (24b), the interpretation can instead be metaphoric, e.g. 'the clear sweet taste'. On the basis of the observation, the adjective in question, therefore, should be adjacent to the head noun.

Similarly, the ordering restriction can be observed in the case of Japanese. For example, compare the examples in (25) and (26). (25) shows an uncontroversial referent-modification and (26) shows the behaviour of reference modifier (i.e. domain modifier), Noun+-*no*.

(25) QA_1-QA_2-N vs. QA_2-QA_1-N[22]

a. tiisa-na sikaku-i ie
small-NA square-I house
'small square house'

b. sikaku-i tiisa-na ie

(Sproat and Shih (1991: 582), Watanabe (2012: 504))

(26) QA-[N+-*no*]-N vs. *[N+-*no*]-QA-N

a. sizuka-na yuki-no hi
quiet-NA snow-GEN day
'quiet snowy day'

b. * yuki-no sizuka-na hi

(cf. Watanabe (2012: 508))

First, the two QAs *tiisa-na* 'small' and *sikaku-i* 'square' in (25a) modify the noun *ie* 'house'. If we change the ordering of these adjectives, the resultant expression in (25b) is perfectly acceptable. However, the domain modifier *yuki-no* 'snowy' needs to be directly adjacent to the noun. Thus, (26a) is acceptable, but (26b) is not. Turning to *akaru-i azi* in (27), we find that the adjective behaves like *yuki-no* in (26b); namely, *akaru-i* behaves like reference modifiers.

(27) QA-[*akaru-i*]-*azi* vs. #[*akaru-i*]-QA-*azi*

a. zyohin-na akaru-i azi

[22] The QA (qualitative adjective), a type of adjective, can be considered a subcategory of predicating adjectives. Here, we use QA for the sake of reference.

refined-NA bright-I taste

'refined Sicilian taste'

b. # akaru-i zyohin-na azi

In (27a), the adjective *akaru-i* holds the intended meaning and the expression can be interpreted as 'refined Sicilian taste'. However, if the adjective and noun are intervened by another qualitative adjective *zyohin-na* 'refined' as in (27b), the intended interpretation cannot be obtained. Note that (27b) will be acceptable if *akaru-i* is interpreted metaphorically as meaning 'clear', 'fine', or 'strong', but the intended meaning here 'Sicilian taste' cannot be obtained. In this sense, (27b) is unacceptable. This behaviour parallels that of the domain modifier in (26b).

A similar pattern can also be observed in the case of alternation with determiners. Let us observe the examples in (28) and (29) with an uncontroversial QA and a domain modifier (i.e. N+-*no*), respectively.

(28) Det-QA-N vs. QA-Det-N

a. sono ooki-i kuruma

that big-I car

'that big car'

b. ooki-i sono kuruma

(cf. Sproat and Shih (1991: 582))

(29) Det-[N+-*no*]-N vs. #[N+-*no*]-Det-N

a. sono ki-no hasi

that wooden-GEN bridge

‘that wooden bridge’

b. # ki-no sono hasi

(cf. Watanabe (2012: 507))

In the case of a QA + demonstrative pattern, as in (28), their ordering does not affect the acceptability of the expressions: (28a) and (28b) are both acceptable. However, as shown in (29), the domain modifier *ki-no* ‘wooden’ should be adjacent to the noun: (29a) is acceptable, but not (29b). Let us then observe the case of the adjective in question:

(30) Det-[*akaru-i*]-*azi* vs. #[*akaru-i*]-Det-*azi*

a. ano akaru-i azi

that bright-I taste

‘that Sicilian taste’

b. # akaru-i ano azi

This example shows that *akaru-i* in (30) behaves much the same as the domain modifier *ki-no* in (29). *Akaru-i* thus needs to be adjacent to the noun; otherwise, the intended meaning cannot be obtained. Therefore, *akaru-i* can be taken as a domain modifier. In sum, *akaru-i* in both (27) and (30) shows the same ordering behaviour as domain modifiers.

3.3.2. Lack of Gradability

One striking characteristic of predicating adjectives is that they show a certain gradable nature (cf. Yasui et al. (1976: §7, §24)). The gradability allows them to co-occur with degree modifiers including *very* and *too* (e.g. *a very beautiful dancer* and *too a bright room*) and inflect for comparative and superlative (e.g. *a more beautiful dancer* and *the brightest room*). Let us

examine whether the relevant expression in English can be gradable or not.

(31) a. # the very bright taste

b. # the brightest taste

As observed in (31), neither the degree modifier *very* in (31a) nor the superlative *brightest* in (31b) contributes to the intended meaning of *bright taste*. In this case, too, if *bright* denotes a metaphoric meaning such as 'clear' or 'fine', then the expressions can be felicitous.

This is also true of Japanese predicating adjectives; they can be modified by *totemo* 'very', as in *totemo utukusi-i odoriko* (very beautiful-I dancer) 'a very beautiful dancer' and *mottomo akaru-i heya* (most bright-I room) 'the brightest room'. This property is, however, not found in the adjectives in question. When the adjective in *akaru-i azi* is modified by a degree modifier as in (32a), the intended interpretation disappears; *totemo* 'very' (32a) fails to intensify the degree of 'Sicilianness'. Similarly, the expression in (32b) does not refer to the taste that best describes Sicilian foods.

(32) a. # totemo akaru-i azi

very bright-I taste

'very bright taste'

b. # mottomo akaru-i azi

most bright-I taste

'the brightest taste'

These examples indicate that the adjectives we are focussing on show the lack of gradability.

Another indication of lack of gradability is the fact that the adjectives in question cannot

evoke the opposite concept. Predicating adjectives as referent modifiers normally evoke semantically opposite counterparts because a predicating adjective and its antonym share one scale for a certain property (Yasui et al. (1976: §24)). For example, the pair of *bright* and *dark* is associated with the scale of brightness. In the case of *bright taste*, however, we cannot find an antonymic expression. Thus:

(33) a. bright taste

b. ?? dark taste

The literal counterpart would be *dark taste* as in (33b), but it does not work as the antonym in the context of (3). We cannot imagine the opposite notion of 'Sicily' in this case.

The same applies to the case of Japanese. For example, based on the context of (3), *kura-i azi* 'dark taste' cannot be an antonymic counterpart of *akaru-i azi* 'bright taste'. The relevant adjective thus differs from normal predicating adjectives as referent modifiers in that it does not establish an antonymic expression. Other examples show the same behaviour. Compare the original examples in (34) and their conceivable antonyms in (35).

(34)	a.	oisi-i {ondo / osirase}	lit. 'tasty temperature/news'
	b.	samu-i koe	lit. 'cold voice'
	c.	karu-i kusuri	lit. 'light medicine'
	d.	yasasi-i zikan	lit. 'kind time'
	e.	kawai-i okane	lit. 'cute money'

(35)	a.	?? mazu-i {ondo / osirase}	lit. 'unappetising temperature/news'
	b.	? {atu-i / atataka-i} koe	lit. 'hot/warm voice'

c. ? omo-i kusuri lit. ‘heavy medicine’

d. ? {tumeta-i / kowa-i} zikan lit. ‘unfriendly/scary time’

e. ?? busaiku-na okane lit. ‘ugly money’

Each expression in (34) is repeated from (13). The expressions in (35) are supposed to be alternative oppositions that would correspond to those in (34). However, they do not represent opposite concepts of the expressions in (34), though the nouns refer to the same referents both in (34) and (35).[23] Note that the expressions in (35) might be interpreted precisely only when they are based on appropriate contexts; however, they still cannot be compared to their antonymic pairs. The absence of their antonyms (viz. the lack of gradability) indicates that the relevant adjectives are not concerned with the scale of a property of the referent of their nouns. This, in turn, means that the adjectives do not function as referent modifiers.

3.3.3. The Function of Domain Modifiers

Let us now draw our attention to the function of domain modifiers. On the basis of the fact that the referent modifiers behave more like reference modifiers, we should clarify the functional difference between referent modifiers and reference modifiers. First, recall that there are two types of modification by prenominal adjectives in English, according to whether the adjective modifies the referent or reference of the head noun. Note also that these modifications yield different readings and functions, as summarised in Table 3.1.

[23] The judgements in (35) are based on at least ten native Japanese speakers.

Table 3.1. Two possible interpretations for *a beautiful dancer*

Example	Modification Type	Reading	Function
a beautiful dancer	Referent-modification	'a dancer that is beautiful'	Predicating
	Reference-modification	'a beautiful as a dancer' / 'dance beautifully'	Identifying

In referent-modification, *beautiful* modifies the referent of *dancer*; that is, in this case, *beautiful dancer* has an intersective reading. On the other hand, in reference-modification, *beautiful* is interpreted in an adverbial way; *beautiful* semantically identifies a type of *dancer* (i.e. *beautiful* qua *dancer*). Given that English prenominal modification expressions are open to these two different kinds of interpretation in principle, we can assume that the expressions in question can be classified as either of them. Japanese also has the two readings, even though it canonically has only referent-modification with the form of *-i*, as shown in the example *akaru-i azi* in Table 3.2.

Table 3.2. The interpretation for *akaru-i azi* 'bright taste'

Example	Modification Type	Reading	Function
akaru-i azi 'bright taste'	Referent-modification	??'the taste is bright'	Predicating
	Reference-modification	'the taste of meal in a bright region like Sicily'	Identifying

Since *akaru-i* is a predicating adjective, the first choice is to refer to the adjective as a referent modifier; namely, *akaru-i* functions as a predicating modifier. However, as we have observed so far, this reading is quite odd; *akaru-i* neither predicates nor describes a property of *azi*. In other words, if *akaru-i* predicates a property of *azi* 'taste', it could be transformed into a predicative form; however, this is not the case. Then, one needs to switch to the second choice,

reference-modification, where the adjective identifies the semantic domain of *taste*.[24]

From the viewpoint of our theory, this can be paraphrased as follows. If predicating adjectives do not predicate a property of the head nouns, they do not exhibit the predicating modifier construction, but instead, they instantiate the domain modifier construction. Recall the definition of the two types of construction in (36).

(36) a. The predicating modifier construction is a type of A-N construction in which the adjective predicates a property of the referent designated by the noun.

b. The domain modifier construction is a type of A-N construction in which the adjective specifies the reference (i.e. semantic domain) indicated by the noun.

The investigation of the relevant adjectives conforms to the definition in (36). This fact leads us to conclude that the predicating adjectives in both English and Japanese can be viewed as domain modifier adjectives.[25]

As shown in the definition of (36), the function of the adjectives in question is to 'specify' the semantic domain of the head noun. This function, for instance, seems parallel to 'classifying' function of relational adjectives (cf. McNally and Boleda (2004), Bisetto (2010), Shimamura (2014)). Furthermore, the term Classifiers (Feist (2012)), also correspond to the domain modifier adjectives here. Although we focus primarily on adjectives as 'modifiers' in the construction, Classifiers include not only relational adjectives but also nouns from a functional point of view (see the discussions in Chapter 2, §2.2.4). As predicted by our

[24] This second choice (i.e. reference-modification) interpretation is not common to ordinary predicating adjectives, but it is available in some cases. See Morita (2019) for other expressions that are related to, but slightly different from, ours.

[25] The term of the relevant adjectival function 'identifying' can be considered parallel to the term 'domain modifier' in the above definition. Incidentally, in this paper, the former will be used for reference-modification in Bolinger's (1967) sense and the latter for our construction-based theory.

construction-based grammar theory, the function of the adjectives in question is essentially determined by the semantic relation to the head nouns. In this view, regardless of whether the prenominal elements are adjectives or not (including nouns, verbs (cf. participle forms), or phrases),[26] many word classes can function as domain modifiers. In this sense, it is not a problem to deal with the predicating adjectives as domain modifier adjectives.

3.3.4. Summary

The observations so far suggest that the adjectives in question are more like domain modifier adjectives (cf. reference modifiers), though their forms look identical with other normal predicating modifier adjectives. Given this fact, we are now in a position to analyse how these adjectives can behave as domain modifiers and to reveal the interpretive process in the following section.

3.4. Analysis

This section analyses the relevant expressions in a more detailed way. Specifically, we will re-examine the consequence drawn from the previous section (i.e. the predicating adjectives in question seem to be domain modifier adjectives). Section 3.4.1 reconsiders the possibility of metaphoric interpretation of the relevant expressions. If they are truly metaphoric, they should be construed via frame mappings and conceptual metaphors. We will show the detailed mechanism of the metaphoric reading. Section 3.4.2 proposes that the predicating modifier construction is, in fact, retained in the relevant expressions implicitly. We will further demonstrate the metonymic interpretation of the relevant expressions in section 3.4.3 in detail. On this basis, we will attempt to investigate other related phenomena in English in terms of the metonymic interpretation from the viewpoint of our construction-based

[26] Regarding this point, see the detailed discussion in Chapter 5.

grammar framework. After this, as a related issue, Section 3.4.4 discusses the phenomenon called 'metonymous NP', which is advocated by Borkin (1984). Section 3.4.5 succinctly summarises the main points of the section.

3.4.1. Frame Evocation and Metaphoric Interpretation

In this section, we will deal with a case where the relevant expression is associated with a 'metaphoric' reading. First of all, let us focus on *bright taste* in the following context.

(37) Context: Describing an impression of the taste of an alcoholic drink[27]

Mead is quite possibly one of the oldest alcoholic drinks known to man. Such a unique beverage with its $_1$yellow colour of sunshine; $_2$the smell of flowers; and the sweet, *bright taste*.

In (37), because of the first underlined expression (i.e. *yellow colour of sunshine*), *bright taste* can be interpreted as 'the taste of alcoholic that evokes sunshine'. The interpretation, therefore, is associated with metonymy (either CONTIGUITY or PART-WHOLE relationship in particular). The adjective *bright* metonymically indicates *sunshine* by partially referring to a sunshine's characteristic with respect to 'brightness'. Interestingly, another metonymic interpretation is concerned here because of the second underlined expression: *the smell of flowers*. In this case, the metonymic interpretation will be 'the taste of alcoholic that can be felt a flowery aroma'.

However, there is another possible interpretation of *bright taste* in this context. For example, *bright* possibly means an 'elegant', 'clear' or 'pleasant'. This kind of reading must be metaphoric in that the adjective *bright* does not metonymically indicate neither part of the

[27] The context is retrieved from https://www.thecurioso.com/mead/ [accessed in July, 2018].

underlined expressions. When we construe metaphoric meanings, as argued by Lakoff and Johnson (1980) and Sullivan (2007, 2013), our cognitive mechanism must be based on a specific conceptual metaphor. We then clarify the metaphoric version of reading of *bright taste* in detail, but before this, let us look at the following pair of metaphoric A-N expressions.

(38) a. sunny mood 'a cheerful mood'

b. brilliant student 'an intelligent student'

(Sullivan (2013: Ch. 3))

Both adjectives *sunny* and *brilliant* in (38) usually refer to qualities of light. In this sense, they are semantically similar items (i.e. synonyms), but in fact they are used differently. Sullivan (2013) argues that the adjectives in (38) are lexically different from each other in that each evokes a distinct frame: *sunny* evokes the LOCATION_OF_LIGHT frame and *brilliant* evokes the LIGHT_MOVEMENT frame. Sullivan (2013) further contends that such different frame evocation by each adjective is necessarily related to a specific conceptual metaphor so as to obtain an appropriate metaphoric reading. Regarding the intended reading of (38a), the plausible conceptual metaphor here can be HAPPINESS IS LIGHT. The adjective *sunny* as a dependent element evokes the LOCATION_OF_LIGHT frame in the LIGHT domain as a source and it maps onto the HAPPINESS domain as a target. Let us observe the relationships of the conceptual metaphor and of the frames in Figure 3.1.

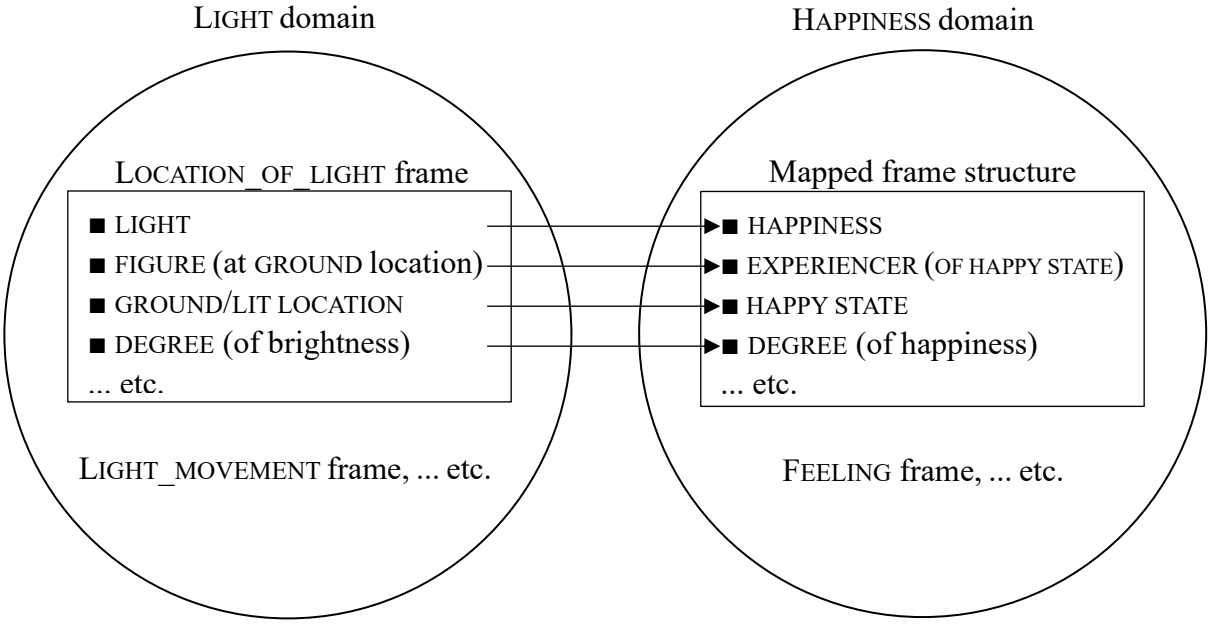

Figure 3.1. HAPPINESS IS LIGHT

(cited from Sullivan (2013: 40), with a slight modification)

With respect to a metaphoric reading, the common function of several adjectives like *sunny* that convey the meaning of 'light' evokes the conceptual metaphor HAPPINESS IS LIGHT. As Sullivan (2013) explains, this is a special case of GOODNESS IS LIGHT listed in the Master Metaphor List (Lakoff et al. (1991)). As shown in Figure 3.1, each source frame element maps onto its corresponding target frame element: LIGHT to HAPPINESS, FIGURE to EXPERIENCER, LIT LOCATION to HAPPY STATE, and DEGREE (of brightness) to DEGREE (of happiness)). In this way, we construe the phrase *sunny mood* metaphorically, following the extended Invariance Principle (see Chapter 2 in detail).

Recall that the expression *sunny mood* in (38a) evokes the LOCATION_OF_LIGHT frame, but the other *brilliant student* in (38b) evokes the LIGHT_MOVEMENT frame. Unlike *sunny*, *brilliant* in this case does not metaphorically mean something 'cheerful'. Observe the diagram that illustrates the metaphorical mapping of (38b) below:

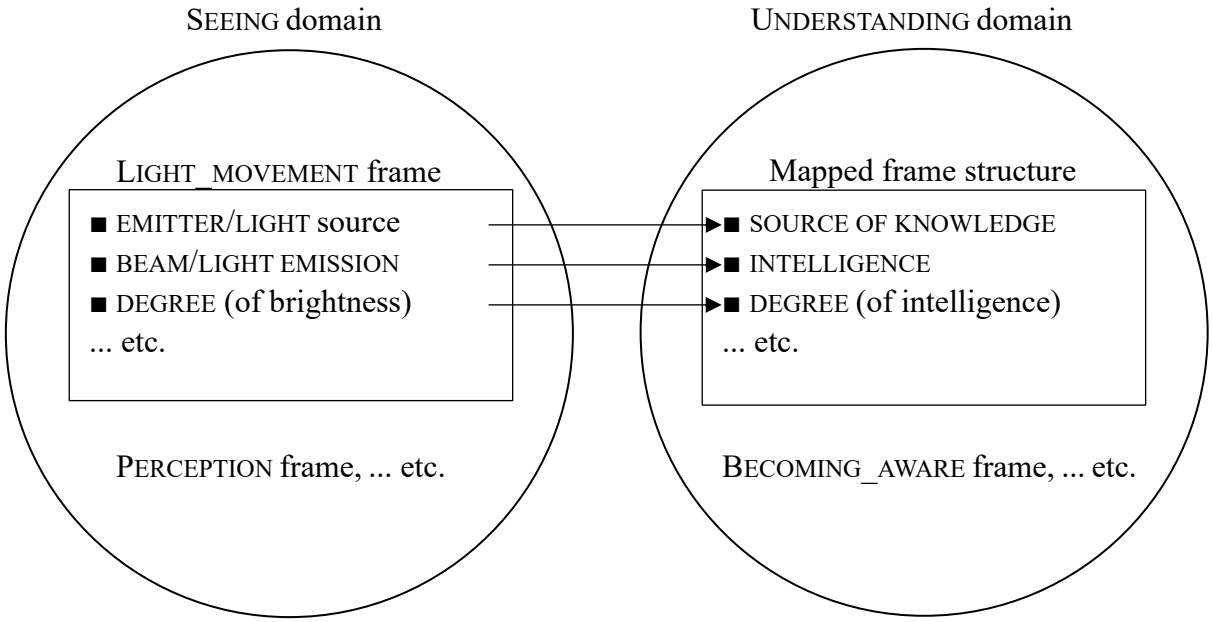

Figure 3.2. UNDERSTANDING IS SEEING and INTELLIGENCE IS LIGHT-EMISSION

(cited from Sullivan (2013: 41), with a slight modification)

In comparison to the diagram in Figure 3.1, Sullivan (2013) explains that *brilliant student* evokes the conceptual metaphors UNDERSTANDING IS SEEING and INTELLIGENCE IS LIGHT-EMISSION. In Figure 3.2, like in Figure 3.1, each frame element in the LIGHT_MOVEMENT frame as the source domain (SEEING domain) maps onto the corresponding frame elements in the target domain (UNDERSTANDING domain), preserving frame element relations. On the basis of the fact that the adjective *brilliant* in (38b) is a modifier as the source of light, Sullivan provides the evidence in (39) and (40) as a contrastive pair of collocations, in which *sunny* is normally combined with the 'locative' head nouns, whereas *brilliant* is usually associated with the head nouns denoting a 'light source'.

(39) The case of locative head nouns

a. sunny {place / terrace / street}

b. ? brilliant {place / terrace / street}

(cf. Sullivan (2013: 38–43))

(40) The case of light source head nouns

a. brilliant {star / moon / torch / flash / sun / firelight / lantern}

b. ? sunny {star / moon / torch / flash / sun / firelight / lantern}

(cf. Sullivan (2013: 38–43))

Sullivan (2013) explains that the LOCATION_OF_LIGHT frame can be observed in locative nouns that evoke the GROUND frame element filled with 'light' in (39a). The adjective *sunny* in (39a) modifies locations, whereas the adjective *brilliant* in (39b) cannot modify such locations. Other possible adjectives evoking the LOCATION_OF_LIGHT frame can be *dark* or *bright* (e.g. *dark place*, *bright corner*). On the other hand, the LIGHT_MOVEMENT frame evoked by the adjective *brilliant* denotes the light source *sun* or *star* as in (40a), whereas the adjective *sunny* cannot indicate the light source as in (40b). These collocations ensure that the frame element EMITTER, which is not included in the LOCATION_OF_LIGHT frame, is a crucial element for the LIGHT_MOVEMENT frame in Figure 3.2. In addition, other adjectives such as *dim* and *bright* can also evoke the LIGHT_MOVEMENT frame (e.g. *dim star*, *bright torch*). She further argues that the validity of each mapping relation can be seen in the following metaphoric expressions:

(41) The LOCATION_OF_LIGHT frame

a. in a sunny mood

b. in a dark state of mind

(Sullivan (2013: 40))

(42) The LIGHT_MOVEMENT frame

a. This book is illuminating.

b. Your answer shed light on the topic.

(Sullivan (2013: 43))

Sullivan (2013) shows that the phrase in (41a) indicates that the adjective *sunny* is used usually in a 'locative (GROUND)' expression and this fact can also be applied to the similar adjective *dark* as in (41b). Likewise, the sentences in (42) show the fact that the subjects *this book* in (42a) and *your answer* in (42b) are referred to as 'light source (EMITTER)'. Because of these different frame evocations, Sullivan (2013: 41) argues that "lexical items' frame evocation constraints the items' uses in metaphor".[28]

Noticeably, as argued by Sullivan (2013: 43), while many adjectives such as *sunny*, *brilliant*, *dim*, and *dark* evoke either HAPPINESS IS LIGHT or INTELLIGENCE IS LIGHT-EMISSION but not both, the adjective *bright* is an exception. The adjective *bright* uses the metaphoric meanings of both 'cheerful' as in *bright mood* (cf. non-metaphoric use: *bright place*) and 'intelligent' as in *bright idea* (non-metaphoric use: *bright star*). In this sense, *bright* has a metaphoric polysemy (Sullivan (2013: 44)).

On the basis of this fact, we are now in a position to examine *bright taste* in the context of (37). As analysed by Sullivan in Figure 3.1, the LOCATION_OF_LIGHT frame is involved in this case, too; namely, the conceptual metaphor HAPPINESS IS LIGHT can also be applied to *bright taste*. Therefore, when we construe *bright taste* in a metaphoric manner, it evokes HAPPINESS IS LIGHT. However, more precisely, I propose that another possible conceptual metaphor

[28] Incidentally, as argued by Sullivan (2013: 47), the adverbial forms of *sunny* and *brilliant*, *sunnily* and *brilliantly* also show the same behaviour as the comparison between (41) and (42). In the case of *sunnily*, like *sunny*, it also rarely modifies verbs denoting light-emission: ?*the firelight burned sunnily* or ?*the lantern shone sunnily*. As for the case of *brilliantly*, it indeed modifies verbs concerning light source: *shine brilliantly* or *reason brilliantly* (Sullivan (2013: 42)).

involved in *bright taste* is PSYCHOLOGICAL BENEFIT IS PHYSICAL BENEFIT (Lakoff et al. (1991: 131)). This conceptual metaphor is a special case of PSYCHOLOGICAL FORCES ARE PHYSICAL FORCES. This metaphor is relevant because both *bright* (i.e. visual sense) and *taste* (i.e. gustatory sense) are linked to the sensory modality and only *bright* is associated with a psychological frame. The frame mappings in the metaphor are represented as in Figure 3.3.

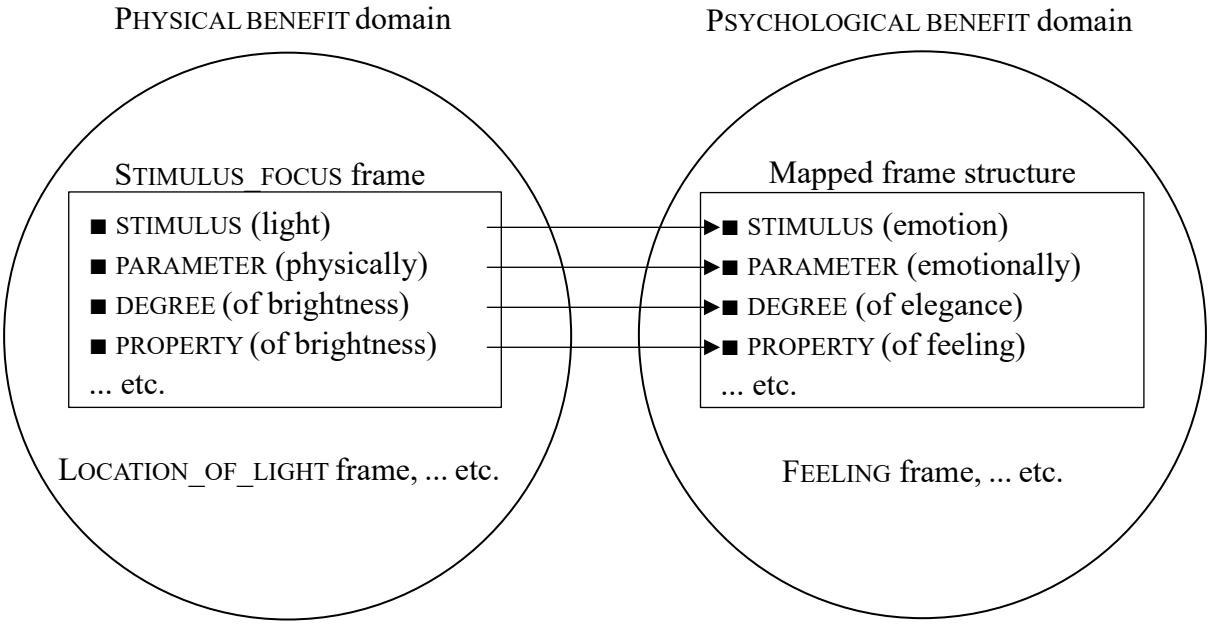

Figure 3.3. PSYCHOLOGICAL BENEFIT IS PHYSICAL BENEFIT (cf. HAPPINESS IS LIGHT)

Each source frame is mapped onto its corresponding target frame: STIMULUS (light) to STIMULUS (emotion), PARAMETER (physically) to PARAMETER (emotionally), DEGREE (of brightness) to DEGREE (of elegance), PROPERTY (of brightness) to PROPERTY (of feeling). The STIMULUS_FOCUS frame is evoked by a number of adjectives (e.g. *amazing*, *astonishing*, *comforting*, *delightful*, and *pleasant*) which denote a certain quality of emotion or experience (see FrameNet (2012)). The expressions in (43) are instances of the conceptual metaphor PSYCHOLOGICAL BENEFIT IS PHYSICAL BENEFIT.

(43) a. He is a smooth talker; he knows how to massage anyone's ego.

b. His pleasant remarks picked me up.

(Lakoff et al. (1991: 131))

The sentences in (43) allow us to construe a psychological state via a physical action such as *massage* in (43a) and *pick up* in (43b). Both are specific stimuli in the relevant frame and taken to be physical benefits that can be associated with psychological states via PSYCHOLOGICAL BENEFIT IS PHYSICAL BENEFIT. Similarly, the adjective *bright* can be regarded as a visual stimulus, but it metaphorically denotes an emotional stimulus that is associated with 'elegant' or 'pleasant'.

In this way, *bright taste* in the context of (37) can have a metaphoric interpretation (i.e. 'the taste of alcoholic that he or she feels elegant or pleasant'), in which case the adjective *bright* can indicate either HAPPY STATE or PSYCHOLOGICAL BENEFIT. Note that this analysis is not intended to show that the relevant expression must always be interpreted metaphorically. I contend that *bright taste* can be metaphoric language in some situations.[29] Moreover, this can be applied to other examples such as *sick room* (i.e. phrasal name) and *sad cigarette* (i.e. transferred epithet). We will not show the detailed frame evocations and their frame mappings, but provide some possible metaphoric interpretations as follows.

(44) sick room (= (6))

a. 'a room for the sick people' (original interpretation)

b. # '{bad / ghastly / cursed} room' (metaphoric interpretation)

[29] Furthermore, the expression *bright taste* may be metaphorically interpreted in a different manner. For example, it can stand for 'a spicy taste' or 'a strong taste'. In this sense, the expression is quite different from *bright student* or *bright mood* in that the metaphoric denotation of *bright* is changeable depending on the situation or the context.

(45) sad cigarette (= (7))

a. ‘a cigarette which is sadly smoked’ (original interpretation)

b. # ‘{lonely / sorrowful / dolorous} cigarette’ (metaphoric interpretation)

As given in (44a), the intended meaning of *sick room* is ‘a room for the sick people’; however, it can also be interpreted metaphorically in some contexts, as in (44b). For example, imagine that someone finds a house in a deep forest. She lets herself in and finds a room very messy and sees many blood-stained objects that made her extremely scary. In this case, the adjective *sick* can mean certain fear-evoking feelings such as ‘bad’, ‘ghastly’, or ‘cursed’ towards the room. Similarly, the original intended meaning of *sad cigarette* is ‘a cigarette which is sadly smoked’ as in (45a). There is another interpretive possibility for the expression as in (45b). For example, as explained by Kanazawa (2008: 614), there is a semantically different reading in the following pair of sentences.

(46) a. John smoked a sad cigarette. (original interpretation; transferred epithet)

b. John looked at a sad cigarette. (metaphoric interpretation; personified)

Kanazawa (2008) explains that the adjective in (46a) is interpreted as a transferred epithet, whereas that in (46b) is not. Following Kanazawa’s (2008: 614) analysis, the adjective *sad* in (46b) is basically interpreted based on the following story: (i) John is a cigarette lover; (ii) John smoked the cigarettes in the box one after another; and (iii) there is only one cigarette left in the box. In this kind of story, the adjective *sad* may mean certain ‘personified’ senses such as ‘lonely’, ‘sorrowful’, or ‘dolorous’. This fact leads us to assume that the head noun that is formally modified by the transferred epithet is heavily contingent on the cooccurring verb’s

semantic restriction (i.e. *smoked* vs. *looked*).[30] However, as mentioned in Section 3.1, in ordinary cases, we will interpret all of these expressions as 'metonymic' language. On this basis, we will delve into the interpretive process and reveal how the metonymic effect is involved from the view of our construction-based framework.

3.4.2. Predicating Modifier Constructions and Metonymic Interpretation

In this section, we will investigate the interpretive process of the relevant expressions and argue that they should retain the predicating modifier construction in essence. This argument seems to contradict the consequence that we have reached so far; namely, we have gained the consensus on the fact the behaviour of the relevant adjectives is quite similar to the domain modifier adjectives. In other words, all the expressions in question seem to be instances of the domain modifier construction. This consequence is correct, but we further argue that this can be accomplished via the covert predicating modifier construction at an interpretive level. We will also discuss in detail why the expressions are related to metonymy.

We will examine both English (i.e. *bright taste*) and Japanese (i.e. *akaru-i azi*) cases. Note first that we will not argue that English and Japanese predicating adjectives always have two choices of reading. Predicating adjectives as reference modifiers (i.e. domain modifiers) are basically marked expressions both in English and Japanese and interpreted only under special conditions.[31] We propose an interpretive process such as that in (47). The process consists of the following three factors: semantic incongruity, context-dependency, and metonymic extension.

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[30] Note that the sentence in (46b) might have a transferred epithet reading such as 'John sadly looked at a cigarette'. This reading, however, is not obtained in general in comparison to the reading of original transferred epithet (cf. Kanazawa (2008)).

[31] Note that there are some essentially predicating adjectives such as *old* that can behave as a reference modifier (e.g. *an old friend* 'a friend for a long time'). In this case, *old* as a reference modifier is given priority over as a referent modifier (e.g. *an old friend* 'a friend who is aged') (cf. Bouchard (2002)).

(47) Interpretation process of *bright taste* (*akaru-i azi*)

a. Semantic incongruity: The meaning of *bright* (*akaru-i*) gets suspended because the noun *taste* (*azi*) has no sense that the adjective can appropriately modify.

b. Context-dependency: One must change the modifying target of *bright* (*akaru-i*), looking into the context.

c. Metonymic extension: 'a bright region' > 'meal of a bright region' > 'bright qua taste'

First, the process is triggered by the semantic incongruity between the adjective and the noun as in (47a). The meaning of *bright* (*akaru-i*) gets suspended because in a normal way of interpretation like that in (47a), the noun *taste* (*azi*) has no sense that the adjective can appropriately modify. Second, *bright* (*akaru-i*) should be interpreted context-dependently. As a result, one must change its modifying target and look into the context. Third, *bright* (*akaru-i*) is associatively combined with a bright region, *Sicily*, and it metonymically constitutes the meaning of 'a bright region'. To interpret 'a bright region' in terms of *taste* (*azi*), it is connected to *meal*, and we obtain the meaning of 'meal of a bright region'. This meaning, obtained through metonymic extension, enables *bright* (*akaru-i*) to function as a reference modifier (i.e. domain modifier). The extended meaning 'meal of a bright region' can successfully identify the semantic domain of *taste* (*azi*). Finally, we obtain the appropriate interpretation of the expression 'taste of the meal of a bright region' (i.e. 'bright qua taste'; bright region type/version of taste).

Importantly, the adjective in question functions as a predicating modifier in this interpretation process; *bright* (*akaru-i*) modifies *region* (*tiiki*) and we can easily interpret the adjective as predicating a property of the referent of *region* (*tiiki*). Thus, we obtain the following interpretation between *bright* (*akaru-i*) and *region* (*tiiki*), where the adjective is

predicatively used both in English as in (48) and in Japanese as in (49).

(48) a. bright region

b. The region is bright.

(49) a. akaru-i azi

b. Sono tiiki-wa akaru-i.

that region-TOP bright-I

'That region is bright.'

In this sense, the adjective maintains the status as a predicating adjective. Accordingly, what makes the adjective into a domain modifier is its metonymically extended meaning. The modification structure can be schematically shown in Figure 3.4.

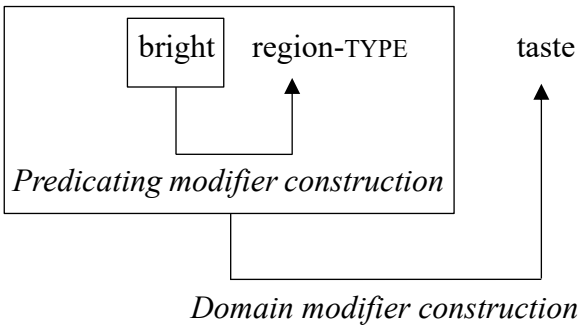

Figure 3.4. Modification relations and constructions of *bright taste*

The adjective *bright*, on the surface, modifies the head noun *taste*, in which case *bright* identifies a type of taste, as we have observed in Section 3.3. In fact, however, due to the contextual information, we can assume that *bright*'s true modifying target is *region* (cf. *the taste of meal in a bright region like Sicily*). The adjective thus metonymically refers to its true

referent of the noun *region*, which is conceptually supplemented by the context of (37) (i.e. *Sicily* in particular). This conceptual supplementation can be achieved by emphasising one frame element in the frame. As shown by FrameNet (2012), *bright* is, in fact, associated with several frames such as the LOCATION_OF_LIGHT frame, the LIGHT_MOVEMENT frame, and the COLOUR_QUALITIES frame. Because of the intended reading of *bright taste* and the true modifying target *region*, the frame element GROUND in the LOCATION_OF_LIGHT frame is focussed in this case. Importantly, this frame element is one of the 'core' elements in the frame (cf. other core elements are FIGURE and LIGHT). Thus, this core element in conjunction with the context, we can easily associate *bright* with *region*. Moreover, this can be supported by the fact that *bright* evidently predicates a property of the referent *region* (i.e. *the region is bright*, as in (48b)). The surface construction of *bright taste*, therefore, appears to be a domain modifier construction, but essentially, the adjective *bright* also modifies the true modifying target (i.e. *region*) conceptually. In this sense, the expression in question turns out to retain the predicating modifier construction at an interpretive level. Interestingly, this diagram can be applied to the case of Japanese in the same way as illustrated in Figure 3.5.

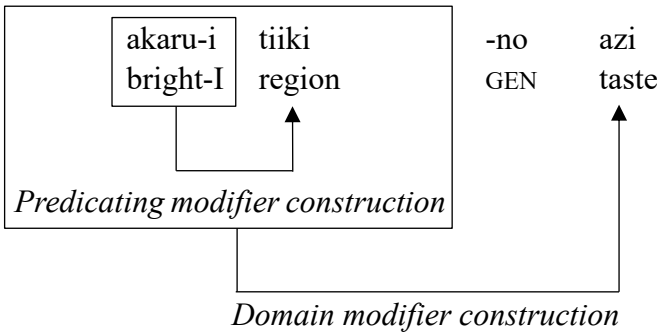

Figure 3.5. Modification relations and constructions of *akaru-i azi*

The adjective *akaru-i* 'bright' stands for the metonymically extended meaning, where it functions as a predicating modifier for *tiiki* 'region'. The semantically extended modifier

(*akaru-i tiiki no*), in turn, serves as a domain modifier for *azi* 'taste'. This is indicated by the fact that the extended meaning takes the form of N+-*no* (i.e. *akaru-i tiiki-no*), which corresponds to the form of an ordinary domain modifier in Japanese (see Section 3.2.2). Given this, it is natural to assume that the grammatical element *akaru-i* is metaphorically required to behave as a domain modifier in the expression *akaru-i azi*, though *akaru-i* as such essentially retains its original status as a predicating modifier at an interpretive level.

Now we can explain why the adjectives in question show the peculiar behaviour observed in Section 3.2. They show such behaviour because the intended meaning forces them to behave as domain modifiers, but not as predicating modifiers. In other words, the adjectives metonymically acquire the status of domain modifiers, and thus, they can behave like that. Their unconventional characteristics can be attributed to the metonymic interpretive process. This is completely different from the case of normal domain modifiers (e.g. N+-*no*), whose behaviours are morphosyntactically regulated.

The proposed metonymic interpretive process is looked upon as solving the semantic difficulty found in the expressions of (13), as shown in (50).

(50) a. oisi-i ondo: 'tasty food' > 'temperature for tasty food' > 'good temperature of food for eating'

b. oisi-i osirase: 'tasty food' > 'news about tasty food' > 'good news about tasty food'

c. samu-i koe: 'poor regions' > 'voice from poor regions' > 'refugees' voice'

d. karu-i kusuri: 'mild efficacy' > 'medicine for mild symptoms' > 'mild medicine for patients'

e. yasasi-i zikan: 'warm feelings' > 'the time for being kind' > 'the peaceful and calm time'

f. kawai-i okane: ‘lovely way’ > ‘the money paid lovely’ > ‘a lovely way to pay money’

In the above expressions, the predicating adjectives do not show the canonical behaviour (i.e. they cannot be predicative in relation to the head nouns); namely, they are metonymically extended to domain modifiers. Moreover, the expressions have not yet been fairly conventionalised. In other words, such expressions are highly context-dependent and require the felicitous context where the adjectives can be appropriately interpreted. In this sense, they are marked expressions (cf. Sakamoto (2007: 286)).

Table 3.3 below summarises the revealed characteristics of the relevant expression, comparing the form, construction type, and function of *akaru-i* in *akaru-i azi* with other ordinary or unmarked modifiers in Japanese; namely, predicating adjectives as predicating modifiers in the top line and the domain modifier N+-*no* in the bottom line.

Table 3.3. Comparison of *akaru-i* in *akaru-i azi* with ordinary modifiers

	Form	Construction Type	Function
Akaru-i tuki ‘moon that is bright’	Predicating adjective	Predicating modifier	Predicating
Akaru-i azi ‘bright taste’	Predicating adjective	Domain modifier	Subcategorising
Ki-no hasi ‘wooden bridge’	[Noun + -*no*]	Domain modifier	Subcategorising

Our analysis of *akaru-i azi* shows that the domain modifier construction canonically takes the N+-*no* form in Japanese, but it even enables predicating adjectives to behave as such under the environments that require interpretive adjustments such as metonymic extension in context.

In sum, we have shown that there is a form-meaning gap in the adjectives in question. Although the form of the relevant adjectives is the same as that of predicating adjectives, their construction type and function are different from predicating ones but much more like N+-*no* as domain modifiers. We have clarified that the predicating adjectives can become domain modifiers due to the metonymic extension that arises from context. In this way, we can precisely interpret and understand what the relevant expressions stand for.

3.4.3. Metonymy in Phrasal Names and Transferred Epithets

This section analyses other relevant expressions in English such as phrasal names (e.g. *sick room*) and transferred epithets (e.g. *sad cigarette*), in terms of metonymy. By doing so, we can generalise our analysis for the relevant phenomena related to noun modification by adjectives.

First of all, we discuss why the expressions that we deal with are associated with metonymy. We should first capture what metonymy is. Ungerer and Schmid (1996: 115–116) explain that metonymy "involves a relation of 'contiguity' (i.e. nearness or neighbourhood) between what is denoted by the literal meaning of a word and its figurative counterpart" (PART FOR WHOLE (e.g. *all hands on deck*), WHOLE FOR PART (e.g. *to fill up the car*), CONTAINER FOR CONTENT (e.g. *I'll have a glass*), MATERIAL FOR OBJECT (e.g. *a glass*, *an iron*)). In contrast, metaphor is construed based on the notion 'similarity' or 'comparison' between the literal and the figurative meaning of an expression (Ungerer and Schmid (1996: 115)).

On the basis of such differences between metonymy and metaphor, let us return to the present data. The expression *bright taste*, for example, is interpreted metonymically based on the context (i.e. *the taste of meal in a bright taste like Sicily*). The adjective *bright* here stands for *a region like Sicily*; namely, *bright* is a 'part' of the 'whole' expression of *bright region*. In this sense, the conceptual relation between *bright* and *bright region* is a typical instance of

'contiguity'; PART FOR WHOLE in particular. As observed in the previous section, this cognitive process fundamentally differs from the metaphoric one. While metaphoric construal needs a mapping across different domains (see Figure 3.1 to 3.3), metonymic construal needs a mapping within one domain. The main function of a metonymic expression is "to activate one cognitive category by referring to another category within the same model, and by doing that, to highlight the first category or the submodel to which it belongs" (Ungerer and Schmid (1996: 128–129)).

Sullivan (2007, 2013) also points out the difference between metaphor and metonymy and argues that they should be clearly differentiated from each other in terms of frame evocation. She calls our general cognitive process towards metonymic expressions "metonymic inferencing" (cf. Traugott and Dasher (2002), Hopper and Traugott (2003), Koch (1999)) and explains that it can produce "semantic extensions" (Sullivan (2013: 50)). The semantic extension here seems to partially correspond to what we call 'metonymic extension' (cf. (47c)). She further argues that unlike metaphor, where frames from one domain are mapped onto those from another, metonymic inferencing "relies on a pre-existing frame alignment that permits ambiguity" (Sullivan (2013: 61)). We will not delve into her explanation of metonymic inferencing because her main analysis is based heavily on a metaphoric version of semantic extension (see Sullivan's (2013) Ch. 4). If we attempt to extract an important point of Sullivan's accounts of metonymy, it can be "the reanalysis of a facet of meaning in one context as part of the meaning of a lexical or grammatical construction in all contexts" (Sullivan (2013: 50), cf. Paradis (2004)). For example, the context of *bright taste* (i.e. (3)) allows us to reanalyse *bright* not as a predicating modifier but as a domain modifier in relation to the head noun *taste*. In this way, the semantic conflict between the *bright* and *taste* is resolved by the reanalysis of a facet of meaning of *bright* based on the context. I argue that this is achieved by a specific grammatical construction (i.e. *modifier-head* relation) and the semantic

relationship between the components of it. In this sense, both modifiers and heads are, in fact, reciprocally related. When their semantic relations are peculiar, a specific context supports them, and then we can associatively connect the semantic frames evoked by both components via metonymic inferencing.

In terms of the effect of metonymy, let us first analyse the phrasal name *sick room*. This expression can also be connected with the 'covert' predicating modifier construction; namely, it is metonymically construed. Before illustrating how the construction is involved in the expression, we will recall the comparison between the original reading and the metaphoric reading in (51), which is repeated from (44).

(51) sick room (= (6))

a. 'a room for the sick people' (original interpretation)

b. # '{bad / ghastly / cursed} room' (metaphoric interpretation)

In this case, too, at an interpretive level, the 'true' modifying target of the adjective *sick* is, in fact, not the head noun *room* in (51), but rather *people* indicated in (51a) (i.e. *a room for the sick people*). As observed earlier, *sick* of *sick room* does not predicate a property of *room* (i.e. *#the room is sick*). When this reading is possible, some metaphoric readings are concerned as in (51b). On this basis, we assume that the expression has the same conceptual modification structure as *bright taste*. Let us illustrate this in Figure 3.6.

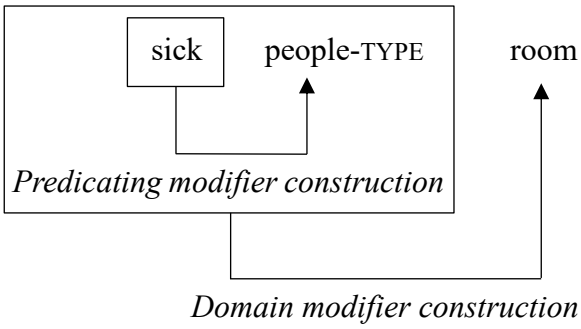

Figure 3.6. Modification relations and constructions of *sick room*

The adjective *sick* modifies the head noun *room* and the modificational relation between them is what we call domain modifier construction, since *sick* actually identifies a type of *room*. However, *sick*'s 'true' modifying target is *people* due to its intended reading (i.e. *a room for the sick people*). In this case, *sick* indeed predicates a property of *people* and we regard the relationship between the adjective and the noun can be an instance of the predicating modifier construction. This fact is supported by the fact that the adjective-noun expression *sick people* has a predicative counterpart construction (i.e. *the people are sick*). This analysis can be applied to other phrasal names as follows:[32]

(52) a. strong room 'a room, for example in a bank, with thick walls and a strong, solid door, where valuable items are kept' (cf. *strongman*) (*OALD*, s.v. *strongroom*)

b. high school 'a school for young people of high grades (e.g. between the ages of 14 and 18)' (cf. *OALD*, s.v. *high school*)

[32] A possible exception can be *hard disk*, which is explained as follows: a device that stores computer information on a spinning (= turning) disk, either internal or external to the computer (*OALD*, s.v. *hard disk*). In this example, the adjective *hard* literally modifies the head noun *disk* and the meaning has been conventionalised, more precisely, lexicalised in a metaphoric manner. This can be confirmed by the definition by Merriam-Webster Dictionary (retrieved from https://www.merriam-webster.com/). It says "a disk that is not flexible and that is used to store computer data".

c. big eater[33] ‘someone who eats a big amount of food’ (cf. *OALD*, s.v. *big*)

d. poor law ‘A law relating to the support of the poor people at public expense’ (cf. *OED*, s.v. *poor law*)

e. quicksilver ‘Now chiefly as an object of comparison, with reference to its rapid movement, shiny surface, tendency to form small droplets, etc.’ (*OED*, s.v. *quicksilver*)

The underlined expressions in (52) allow us to understand that all modifiers’ ‘true’ modifying targets are, in fact, not their head nouns on the surface (e.g. ??*the room is strong* in (52a)), but rather the underlined set of phrases represented in the intended readings. Again, this analysis can be supported by the fact that each phrasal name has a predicative counterpart: *the door is solid and strong* for (52a), *the grade is high* for (52b), *the amount is big* for (52c), *the people are poor* for (52d), and *the movement is rapid* (viz. *quick*) for (52e). Marchand (1969: 65) also argues that the expressions in (52) differ from an example like *blackbird* in that “it is not derived from a copula sentence (‘the bird / is black’)”, but rather “it is a transform of the predication of a rectional sentence such as ‘the smith / (works with) black (things)’” (cf. *blacksmith*). As noted by Marchand (1969), for example, *madhouse* (adjective-noun combination) is parallel to *birdcage* (noun-noun combination), which he calls an adverbial complement type compound, in that it has a corresponding meaning of “B (the head noun) is designed for an action whose goal is A (the modifier)”.[34] If we only employ this meaning-based analysis, however, some examples of our analysis will deviate from this (e.g. the

[33] According to OED (s.v. *big*$_{12}$), the adjective *big* is “modifying an agent noun: that is much in the habit of performing the action specified; sometimes with the implication of excess, as *big drinker*, *big eater*, *big spender*, etc.”.

[34] On this basis, Marchand (1969: 65) further provides some examples such as *condemned cell*, *dry-nurse*, *green-grocer*, *greenhouse*, *mad-doctor*, *missing list*, *poor-box*, *poorhouse = poorshouse*, *poor-rate*, *sick-bed*, *sicklist*, *sick-nurse*, *wanted list*, *wet-nurse*, and *whitesmith*.

examples in (52a, b) seem to be the case, but the others in (52c, d, e) are not). Furthermore, there are complex examples in which only adjectives are associated with metaphoric extension as in (53) (cf. Shimamura (2014: 30)).

(53) a. small talk 'Light talk or conversation, esp. polite conversation about unimportant or uncontroversial matters, as engaged in on social occasions.' (*OED*, s.v. *small talk*)

b. high season[35] 'the peak time of year for a particular activity, occurrence, etc.' (*OED*, s.v. *high season*)

c. heavy hitter 'a person who is successful and has a lot of influence' (*OALD*, s.v. *heavy hitter*)

d. old boy 'A male former pupil of a school, esp. a particular British public school' (*OED*, s.v. *old boy*)

e. grandchild 'the child of one's son or daughter' (*OED*, s.v. *grandchild*)

In the examples of (53), the adjectives are interpreted metaphorically, as indicated by each intended meaning: *small* means 'light, unimportant, and uncontroversial' in (53a), *high* means 'peak' in (53b), *heavy* means 'a lot of ' in (53c), *old* means 'former' in (53d), and *grand* means 'a generation younger than' in (53e). The clear difference between the case of (53) and that of (52) is that only the former simply corresponds to a predicative counterpart (e.g. *the talk is small* (vis. *light*) or *the season is high* (vis. *peak*)) but the latter does not, in the sense that it cannot yield the intended meaning when transformed into a predicative form (e.g. *#the room is*

[35] According to OED (s.v. *high season*), this expression can be used in a specific situation such as 'the season of highest rainfall in a particular region, the period when water levels are highest' or 'the most popular time to visit a resort, hotel, tourist attraction, etc., when prices are highest'. In either case, the underlined expressions lead us to assume that the adjective *high* metaphorically indicates something which is at a high level relative to the standard.

strong or *#the school is high*). One may argue that some of the expressions in (53) have already been lexicalised; however, our attention here is drawn to the internal semantics of the relevant expressions, the adjectives in particular. Furthermore, recall that our framework does not concern whether the expressions are phrases or words. In this sense, the examples in (53) do not actually differ from those in (52), but rather they simply represent the predicating modifier construction due to their predicativity.

Through the discussion, the examples in (52) and (53) are slightly different in that the former concerns metonymy and the latter concerns metaphor. However, they have a common characteristic in that the predicating modifier construction is essentially retained for both types. Therefore, our construction-based account can also be applied to phrasal names. On the basis of the analysis, we can further assume that it is such a metaphoric or metonymic extension that allows the expressions to become conventionalised idiomatic senses (i.e. phrasal names).

Interestingly, we have another type of phrasal name in which the entire adjective-noun combination can be metonymic as in (54).

(54) a. smallpox ‘An acute infectious disease characterized by high fever, headache and backache, and a rash which affects esp. the face and extremities and consists of pustules which heal with scarring.’ (*OED*, s.v. *smallpox*)

b. hard disk ‘A non-volatile storage medium in the form of a rigid disk with a magnetizable surface, typically having a large storage capacity’ (*OED*, s.v. *hard disk*)

c. dark room ‘a room from which all actinic rays of light are excluded, used by photographers when dealing with their sensitized plates’ (*OED*, s.v. *dark* (*dark room*))

d. white water ‘Turbulent, foamy water such as that found in river rapids or shallows at sea’ (*OED*, s.v. *white water*)

e. yellow pages ‘a section of a book, typically containing an index or other reference material, which has been printed on yellow paper; (in later use) a telephone directory, or a section of or supplement to one, in which businesses and other organizations are listed according to the goods or services they offer’ (*OED*, s.v. *yellow* (*yellow pages*))

The expressions in (54) can be regarded as metonymic phrasal names because the entire adjective-noun combination is a PART of each substance. For example, *hard disk* in (54b) is a PART of computer and *yellow pages* in (54e) is a PART of book. In this sense, the expressions in (54) indicate a typical PART-WHOLE relationship with the substances to which they belong. This kind of expression varies from the expressions in (52) in that they can be straightforwardly transformed into a predicative form (e.g. *the pox is small* or *the disk is hard*); namely, they simply represent the predicating modifier construction.

We summarise the characteristics of all the types of phrasal names in Table 3.4.

Table 3.4. Comparisons of the characteristics of phrasal names

Example-type	Semantic extension-type	Construction-type	
		Implicit construction	Explicit construction
sick room-type (cf. (52))	Metonymic	Predicating modifier	Domain modifier
small talk-type (cf. (53))	Metaphoric	—	Predicating modifier
hard disk-type (cf. (54))	Metonymic	—	Predicating modifier

As observed in Table 3.4, the *sick room*-type is the only type of phrasal name that has an implicit construction (i.e. the predicating modifier construction). In this type, while the explicit construction seems to be the domain modifier type because it cannot be predicative (i.e. #*the room is sick*), the adjective metonymically modifies its 'true' modifying target so as to predicate a property of it (i.e. *the people are sick*). Thus, this *sick room*-type in fact retains the predicating modifier construction in the same way as *bright taste*. On the other hand, the *small talk*-type is concerned with metaphor due to its intended reading. This can be supported by its predicability (i.e. *the talk is small*). In this case, only the meaning of adjective is metaphorically extended (i.e. *small* → 'light, unimportant, or uncontroversial'). This kind of expression thus can be analysed in the same way as Sullivan's (2007, 2013) examples (e.g. *bright student* or *blood-stained wealth*). The *hard disk*-type is another metonymic type of phrasal names but its whole adjective-noun combination indicates a PART of the substance. Since this kind of expression is directly associated with metonymic reading, its literal modificational relation is simply predicative (i.e. *the disk is hard*); in this sense, it is not especially peculiar.

Accordingly, in spite of the fact that there is a metaphoric type in phrasal names, we can analyse phrasal names from the same theoretical perspective; namely, we have analysed the relevant expressions, focussing on how the predicating modifier adjectives behave and how the predicating modifier construction is maintained, even when it is 'invisible'. Through the same analysis of *bright taste*, we have revealed the fact that all types of phrasal names instantiate the predicating modifier construction either in a metonymic or in a metaphoric manner. We have particularly clarified, from a construction-based perspective, the cognitive mechanism of *sick room*-type and its semantic peculiarity.

We will then draw our attention to another linguistic phenomenon called *transferred epithet*. First of all, let us take up the typical examples in (55), which are cited from P. G.

Wodehouse's literary works (cf. (7)).

(55) a. He was now smoking a sad cigarette and waiting for the blow to fall.

b. I balanced a thoughtful lump of sugar on the teaspoon.

c. She tapped Bruton Street with a testy foot.

(Hall (1973: 92), underlining mine)

As observed in Section 3.2.1, we notice that the underlined adjective-noun expressions in (55) seem semantically peculiar in that each emotional adjective modifies the substantial noun which is not normally concerned with human emotion. In other words, following Rickard (1996: 3), a transferred epithet "implies that *there is no logical link between the adjective and the noun it grammatically qualifies*, but rather, between the adjective and *something else*". We now notice that there is a gap between the form and meaning of this phenomenon; namely, a transferred epithet modifies the head noun formally but not semantically.

Hall (1973) explains the characteristics of the transferred epithet as follows:

(56) a. [Transferred epithets], in their turn, involve a reference to the subject of the verb in each instance.

b. [W]e might interpret the adjective, in the construction Adjective + Noun, as equivalents to an adverb transferred from its position modifying the verb of the clause.

(Hall (1973: 93))

Roughly speaking, (56a) corresponds to the interpretive rule and (56b) is about the construction alternation rule. The former says that the sentence including a transferred epithet basically

allows us to interpret it in a subject-oriented manner. The latter says that a transferred epithet (i.e. an adjective) can be parallel to a corresponding adverb so as to modify the verb in the sentence. For example, *sad* of *sad cigarette* in (55a), based on the interpretive rule of (56a), refers to the grammatical subject *He* in the sentence; that is, it is *He* who is *sad* in this case. Further, based on the construction alternation rule of (56b), *sad* can modify the verb *smoking* by changing its adjectival status into the adverbial one (i.e. *sadly*).

On the basis of these rules and from his detailed observation, Hall (1973) argues that the transferred epithet phenomenon is not grammatically wrong, but rather it is specialised by semantic notions. Hall (1973: 93) then attempts to decompose the structure of (55a) by suggesting a transformational process through the following 'imaginary intermediate stages':

(57) a. He was sad. + He was smoking a cigarette.

b. He was sadly smoking a cigarette.

↓

c. He was now smoking a sad cigarette. (= (7a))

Hall (1973) argues that the resultant sentence in (57c) can be firstly classified into two descriptive properties in terms of the subject's emotion (i.e. *He was sad*) and action (i.e. *He was smoking a cigarette*) as indicated in (57a). Secondly, as a manner of the action *smoking*, the adjective *sad* is moved to modify the way of smoking, transforming its category from adjective to adverb, as in (57b). Finally, the adverb *sadly* is moved to the front of the head noun *cigarette*, transforming its category into the adjective *sad* and this is the transferred epithet.

On the basis of Hall's (1973) argument, we clarify the mechanism of how the two types of construction (i.e., the predicating modifier construction and the domain modifier construction) are concerned with the phenomenon. Taking *sad cigarette* as an example, though the mechanism differs from the case of phrasal names, we argue, that the transferred

epithet is also considered to retain the predicating modifier construction in an implicit way, as illustrated in Figure 3.7 (cf. (57a)).

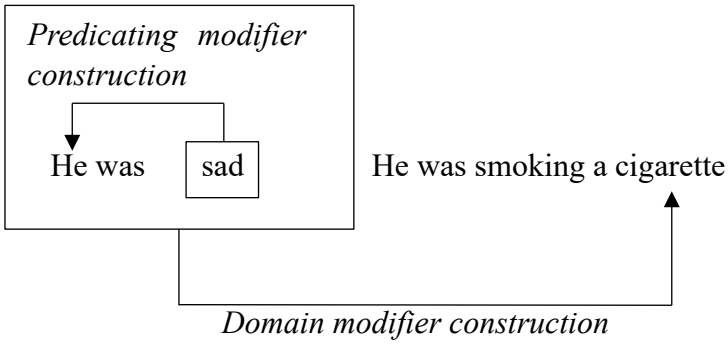

Figure 3.7. Modification relations and constructions of *sad cigarette*

One may notice here that there are some differences from the cases of *bright taste* and *sick room* in earlier sections. First, as an implicit predicating modifier construction, the adjective *sad* predicates a property of the grammatical subject *He*; more specifically, it predicates an *emotion* or *mood* aspect of the referent. This conforms to Hall's (1973) subject-oriented interpretive rule in (56a). Second, as an explicit construction, the domain modifier construction concerns not only the head noun *cigarette* but also the main verb *smoking* in the sentence. This is based on Hall's construction alternation rule in (56b) and his proposal of intermediate stages. In the original sentence, the adjective *sad* seems to modify only *cigarette* on the surface, but its predicative counterpart cannot be acceptable (i.e. ??*the cigarette is sad*). Unless the intended meaning is metaphoric (cf. (45b)), this grammatical behaviour at least makes us regard the adjective as a domain modifier. In fact, as shown in the intended reading of (57b), it essentially modifies a *mood* or *manner* of the action *smoking* or the entire verbal phrase (i.e. *smoking a cigarette*). This fact allows us to conclude that the adjective functions as a domain modifier in the sense that it identifies a type of *cigarette* in relation to its essential action *smoking* (i.e. *a cigarette smoked sadly* = a sadly smoked-type cigarette). Incidentally, this

function can be confirmed by maintaining its adjectival use as follows: *a cigarette smoked in a sad* {*mood* / *manner* / *way*}. Thus, similar to the cases of *bright taste* and *sick room*, though it seems a little tricky, the transferred epithet, too, retains the predicating modifier construction.

Yet, we still have an issue which concerns the categorial change from Adverb to Adjective (or *vice versa*) in the present topic (e.g. *sad* vs. *sadly*). In this paper, our discussion is based on Giegerich (2012), where he argues that adverbs including the adverb-forming *-ly* are regarded as an inflected adjectives because they are morphologically non-distinct from adjectives in that they do not have their own morphology but share all relevant morphological characteristics of adjectives; namely, *-ly* is an inflectional suffix.[36] We will not examine Giegerich's argument (i.e. the single-category analysis) in detail here but attempt to extract some crucial points and data. First, let us look at the examples in (58), which are adduced by Sugioka and Lehr (1983).

(58) a. beautiful dancer

b. quick thinker

c. heavy smoker

(Giegerich (2012: 348), cf. Sugioka and Lehr (1983))

As discussed in detail in Chapter 2, for example, *beautiful dancer* in (58a), even without the adverb-forming suffix *-ly* (e.g. *beautiful* vs. *beautifully*), is ambiguous in the sense that a beautiful dancer indicates either a beautiful person who is a dancer or a person who dances

[36] Giegerich (2012: 342) demarcates a border of the morphological status between adjectival and adverbial *-ly* and contends that they are "radically different suffixes". The former is a derivational suffix while the latter is an inflectional one. For example, the suffix *-ly* in *deadly*, like *-ish* in *greenish*, is derivational but non-category changing, whereas the same form suffix *-ly* in *nicely* is inflectional. See Giegerich (2012) for more detailed discussions.

beautifully. The modifiers in (58) show this kind of two-way ambiguity.[37, 38] In other words, when we interpret the relevant examples in an intersective reading, the modifiers function as the category Adjective. On the other hand, when we interpret them in a subsective reading, we regard the modifiers as the category Adverb. Such a categorial change with respect to an alternative interpretation can be further observed in the following compound adjectives.

(59) a. quick-dissolving

b. slow-burning

c. free-moving

(Giegerich (2012: 349))

In (59), such forms can be parallel to adjectival phrase such as *quickly dissolving*, *slowly burning*, or *freely moving*. On this basis, Giegerich (2012: 349) argues that "there is no independent reason to distinguish between an adverb in *slowly burning* and an adjective in its compound counterpart *slow-burning*". In addition to such a morpho-semantic point of view, Giegerich's (2012) single-category analysis can be further strengthened from a syntactic point of view. Observe the following examples, in which adjectives in (60a) and adverbs in (60b) take the same modifiers.

[37] One may notice that the head nouns in (58) are deverbal nouns and this point is so crucial that the relevant adjective can be interpreted in an adverbial way. This fact is also pointed out by Morzycki (2016) with respect to Larson's (1998, 2000) analysis. Our analysis is, however, is based on Bouchard's (2002) famous *old friend problem*, in which the adjective *old* is ambiguous in two ways (i.e. intersective reading ('a friend who is aged') and non-intersective reading ('a friend for a long time')), regardless of the fact that the head noun is certainly not deverbal.

[38] Concerning this point, see Pustejovsky (1995), Jackendoff (1997), or Bouchard (2002), to name but a few.

(60) a. very nice; surprisingly good

b. very nicely; surprisingly well

(Giegerich (2012: 356))

Both adjectives (*nice* and *good*) and adverbs (*nicely* and *well*) in (60) can indeed be modified by the same modifiers: 'degree modifiers' (*very* and *surprisingly*). Therefore, the categories Adjective and Adverb "share across their near-complementary distribution their function as modifiers; they are in turn modified by members of the same category; and […] [they] are morphologically the same" (Giegierich (2012: 357)). These facts lead us to conclude that both Adjective and Adverb are classified as the single category. Thus, the category distinction between adjectives and adverbs in the transferred epithet phenomenon will not be a problem for the present analysis.

We are now in a position to discuss how metonymy is connected with the transferred epithet. First of all, we need to identify 'covert' components of both predicating modifier and domain modifier constructions. As provided in (57), Hall's (1973) proposal of transformational stages give us hints to deal with the metonymic effect. The adjective *sad* as a domain modifier determines the semantic domain of the head noun *cigarette*. While the adjective functions in this manner, as argued by Hall (1973), we need to take the meaning of the main verb (i.e. *smoking*) into account. In this sense, the verbs in the phenomenon is crucial so as to differentiate the intended original interpretation from a possible metaphoric interpretation, as observed in (46). In this sense, we interpretively complement the verbal meaning with the original sentential context. The adjective *sad* is thus adverbially interpreted in relation to both verbs and head nouns. The adverbial interpretation of *sad*, as discussed in the case of *beautiful dancer*, is also unproblematical. It is due to the metonymic effect that we can conceptually refer to the verbal meaning when interpreting the relevant expression. In

other words, metonymy concerns the category shift from adjective to adverb (cf. Bauer (2018), Brdar (2017), Brdar and Brdar-Szabó (2013)). Moreover, when we interpret the implicit predicating modifier construction, based on the definition of interpretive rule in (56a), we need to metonymically refer to the grammatical subject that would appear in the sentential context. In sum, at an interpretive level, due to the illogical relationship between the adjective and the head noun, we conceptually complement both main verbs and grammatical subject, referring to the sentential context. This conceptual 'burden' makes the transferred epithet complex and yields a highly context-dependent nature.[39]

Accordingly, as in the case of phrasal names, transferred epithets are also considered to retain the predicating modifier construction in an 'invisible' manner, while their surface constructions seem to be parallel to the domain modifier construction. That is, based on Hall's (1973) argument, our constructional analysis can be further applied to the phenomenon, transferred epithets. The two rules proposed by him as in (56), in fact, correspond to our two types of construction. The interpretive rule in (56a) can be taken to be the predicating modifier construction and the construction alternation rule in (56) can be the domain modifier construction. Hall's account is arguably based on a generative grammar point of view and he reveals the fact that the transferred epithet is an instance of a consistent transformational rule. Our analysis, on the other hand, is based on a construction-based approach and we do not take a transformational perspective. However, based on Hall's (1973) and Giegerich's (2012) detailed analyses, we have clarified the very interpretive mechanism of the transferred epithet and bridged the form-meaning gap in a more reasonable way. All the relevant peculiar modificational phenomena analysed in this chapter (i.e. *synaesthetic expressions*, *phrasal*

[39] It is this conceptual burden that makes the reader be curious about the very contents of literary works and that makes the phenomenon stylistically special. This can be a reason why many previous studies have dealt with the transferred epithet in the field of literature, but very few in the field of linguistics.

names, and *transferred epithets*) thus can be reduced to Sullivan's (2007, 2013) two types of constructions.

3.4.4. Metonymous NPs

In the previous section, we have analysed the peculiar modificational constructions in which the semantic relationship between the adjective and the head noun appears to be illogical. This section aims to strengthen our analysis by mainly discussing a related phenomenon which is called *metonymous NP's* (or *beheaded NP's*) by Borkin's (1984).

Let us first succinctly review our own analysis. The following examples are typical cases extracted from the previous sections: (61a) is a synaesthetic expression, (61b) is a phrasal name, and (61c) is a transferred epithet.

(61) a. bright taste; the taste of meal in a bright region

b. sick room; the room for the sick people

c. sad cigarette; the cigarette smoked in a sad mood

In our analysis, the underlined nouns in (61) are covert head nouns and are metonymically complemented by the relationship of *frames* evoked by the lexical items within a *construction* (i.e., the A-N construction). The characteristics common to the three types of modificational expression in (61) are thus (i) covert head nouns and (ii) metonymic interpretation. Further, except for (61b), which has already been conventionalised and decontextualised as a *name*, the expressions in (61a) and (61c) are fairly context-dependent. This context-dependency relies heavily on the infrequency of the expressions. In this way, all the relevant phenomena can be reduced to our construction-based analysis.

Such an analysis is actually supported by the facts that some other previous studies have

revealed so far. For instance, let us first observe the following examples.

(62) a. Turn up the hi-fi.

b. I'm parked in a no-parking zone.

c. Chomsky is too complicated for freshmen to read.

d. This can is contaminated.

(Borkin (1984: 106))

Following Postal's (1970) argument, Borkin (1984) takes up the above examples and discusses their form-meaning gap in a transformational grammar framework. She argues that the examples in (62) are all considered to be derived by a rule *head deletion*. Thus, each corresponding sentence in (63) shares the same underlying structure.

(63) a. Turn up the sound of the hi-fi.

b. My car is parked in a no-parking zone.

c. Chomsky's writings are too complicated for freshman to read.

d. The contents of this can are contaminated.

(Borkin (1984: 106))

The underlined nouns in (63) are regarded as deleted head nouns because the interpretations of the respective sentences both in (62) and (63) can be the same; more specifically, the sentences in (62) are the 'implicit' case, while those semantic content is made 'explicit' by the fuller NPs in (63). We will refer to the NPs remaining after the head deletion rule as *metonymous NPs* or *beheaded NPs*, following Borkin (1984). Borkin does not provide an explanation of how metonymy concerns this phenomenon, but as we have discussed earlier, the PART-WHOLE

relation can be applied to this case, too. For example, the relation between *Chomsky* in (62c) and its fuller NP *Chomsky's writings* in (63c) is a typical instance of a PART-WHOLE relationship (i.e. PART; *Chomsky*, WHOLE; *Chomsky's writings*). In other words, at an interpretation level, we metonymically extend the semantic content of *Chomsky* to *Chomsky's writings*.

Borkin (1984: 116) attempts to explain such a phenomenon with the notion of *coreferentiality* in a generative semantics framework, in which "syntactic rules relate semantic representations to surface structure". As explained by Borkin (1984: 106), if the NPs remaining after two separate deletions of two different underlying structures are coreferential, they continue to function as coreferential in the surface structure with respect to certain syntactic processes. Let us observe this in (64).

(64) a. Max is playing with himself again.

b. Norman Mailer doesn't mind being read under the influence of drugs.

c. Because Boston is so dirty, it will soon enact a new anti-litter law.

(Borkin (1984: 106))

All NPs in the subject position of (64) are coreferential. In (64a), *Max* refers to a person and *himself* refers to that person's genitals, though *reflexivisation* is involved. In (64b), *Norman Mailer* refers to a specific person, while *Norman Mailer* by a rule also refers to the writings of that person. The latter NP is derived by *Equi NP Deletio*n. In (64c), *Boston* refers to the city of Boston in a physical sense, and the pronoun *it* refers to the group of people that pass laws concerning that city. The sentence is derived by a syntactic process *pronominalisation*.

Borkin then concludes that coreference conditions are different for some of the syntactic processes. She further implies that it seems difficult to explain the metonymous NP phenomena only with the notion of coreferentiality. For example, the following (b)-sentences

are unacceptable resulting from two head deletions.

(65) a. The people whose work is connected with the Stock Exchange threw ticker tape all over Wall Street.

b. * Wall Street threw ticker tape all over itself.

(66) a. The government of North Vietnam wants the city of Hanoi to become more spacious.

b. * Hanoi wants to become more spacious.

(67) a. All the people who live in the apartment house have hepatitis, and it badly needs a new coat of paint.

b. * The whole apartment house has hepatitis, and it badly needs a new coat of paint.

(Borkin (1984: 107))

In (65), *Wall Street* fails to refer to its reflexive *itself* through the reflexivisation. In (66), the beheaded NP *Hanoi* refers to the government whose capital is at Hanoi and if it refers to the city of Hanoi by the Equi NP Deletion, the sentence in (66b) is unacceptable. In (67b), the phrase *the whole apartment house*, which refers to the house's inhabitants, cannot function as an antecedent for the pronominalisation of an NP referring to the apartment building itself. On the basis of this kind of example (see Borkin (1984: 110–115) for more other examples), Borkin (1984: 110) points out that acceptability judgements on the above examples "cannot be predicted solely with respect to a particular rule and NP's beheaded by a particular pair of different head deletions". She then follows what George Lakoff discussed in his lectures, in which "logical structure is related to surface structure by wellformedness conditions that also take into account *contextual and pragmatic information*" (Borkin (1984: 97), italicising mine). Borkin thus appears to claim that it is actually important to take 'extralinguistic' information

into account when analysing such a phenomenon. Furthermore, in her footnotes, she clearly states that Bolinger's semantic explanation is more preferable for this kind of phenomena. Let us then briefly overview how Bolinger explains metonymous NPs.

Bolinger (1969) discusses the same issue as metonymous NPs based on the following minimal pair of expressions.

(68) a. I saw the bell.

b. I heard the bell.

(Bolinger (1969: 2))

Both sentences in (68) have the same structure (i.e. NP–V–NP), in which the second NP functions as the direct object of each different verb. However, as Bolinger contends, both are understood quite differently as follows:

(69) a. I saw an object which was a bell.

b. I heard the sound made by the bell. / I heard the bell ring.

(Bolinger (1969: 2))

The sentence in (68a) involves the interpretation in which *I saw* an object which was *bell* as in (69a), whereas that in (68b) is interpreted, not in the way that *I heard* an object, but that *I heard the sound of the bell* (viz. *I heard the bell ring*) as in (69b). The verb *hear* thus always implies a *sound*. Bolinger (1969: 3) argues that even "in the absence of any other indication, the hearer assumes the sound to be the characteristics noise made by the object named" and gives other examples such as *I heard the singer* (*sing*), *I heard the thunder* (*thundering*), *I heard the announcer* (*talking*, *announcing*), *I heard the dogs* (*barking*), or *I heard* (*the chopping sound*

of) *the axes*. The underlined nouns in (69b) are, in transformational terms, described as *head deletions*, which is exactly the same as what we have observed in Borkin's discussion of metonymous NPs.

We claim here that the above Bolinger's statement is essentially parallel with *frames*, which are certain basic meanings of lexical items including contextual and pragmatic information. Therefore, even though such explicit *sound*-relevant lexical items do not appear on the surface, the *sound* of the object is interpretable based on the frame relationships evoked only by some specific lexical items in the sentence. We further contend that such information can be appropriately combined by the notion of *constructions*, as discussed so far (e.g. the direct object construction: the verb (*hear*) and the direct object (*bell*)). Accordingly, Borkin's discussion and Bolinger's argument seem equivalent to our present topic.

In sum, Borkin's (1984) and Bolinger's (1969) accounts of covert head nouns and metonymic interpretation can be explained by the semantics of lexical words and contextual information. The discussion so far thus seems to strengthen our analysis and enables us to explain the semantically peculiar noun-modification by adjectives in a more general principle.

3.4.5. The Blended Domain Modifier Construction as a Third Type of A-N Construction

This section recaptures semantically peculiar A-N constructions such as *bright taste* from a Construction Grammar point of view and claims that they are regarded as a third type of A-N construction, i.e. *Blended Domain Modifier Construction*.

As discussed in Section 3.4.2, A-N expressions such as *bright taste*, *sick room*, and *sad cigarette* require metonymic extension for their intended readings, since the true modifying targets of the predicating adjectives are 'telescoped' or 'folded' (see (61)). For example, *bright taste* metonymically stands for *bright <u>regional</u> taste* (cf. *British accents* < *British <u>regional</u> accents*). On this basis, we have argued that such A-N expressions appear to be

instantiations of the predicating modifier construction, but their interpretations are of the domain modifier construction (i.e. subcategorising the type of the head noun). Put simply, the relevant expressions are of the 'externally' predicating and the 'internally' domain modifier construction. Moreover, such predicating adjectives actually retain their predicating function at an interpretive level by the effect of metonymy (e.g. *bright taste* < *bright region*-TYPE *taste*; *the region is bright*). The two types of construction can thus be considered to be 'blended' at an interpretive level. Such a blended characteristic of A-N expression is neither attributed to the predicating nor domain modifier constructions. We should therefore regard the relevant expressions as a third type of A-N construction. We will call this type of construction the Blended Domain Modifier Construction.

Let us explain why we propose this type of expression as *a third* type A-N construction. In fact, with respect to A-N expressions, the semantic relation and interpretive mechanism of our present target are completely different from what has been targeted and investigated in the previous studies. Compare the following A-N examples.

(70) a. a fast typist vs. a male typist

b. delicious taste vs. bright taste

In the pair of expressions in (70a), as discussed in Chapter 1, each adjective modifies a different aspect of the head noun (i.e. *fast* modifies the TELIC role and *male* modifiers the FORMAL role). That is, the adjectives alternate their modifying targets of the head noun (cf. type shifting). In this case, the head noun has to change its property (i.e. TELIC and FORMAL). Put simply, the type shifting only occurs with the head noun (cf. nominal coercion). However, such a semantic analysis cannot be applied to the case of (70b), since *bright* in comparison with *delicious* cannot find any appropriate modifying targets in the head noun *taste*. This requires

the adjective to be coerced into shifting from predicating to domain-identifying type (cf. adjectival coercion). This kind of analysis has been hardly noted in the pertinent literature, as far as I know.[40]

Let us then discuss the constructional relationship, comparing *an old friend* to *bright taste*. The well-known but problematic A-N expression, *an old friend*, has two types of reading (i.e. intersective and non-intersective, see Chapters 1 and 2). The adjective *old* as an intersective adjective functions as a predicating modifier, while *old* as a non-intersective adjective functions as a domain modifier. Both interpretations and constructions are represented in (71a) and (71b), respectively.

(71) an old friend

a. 'a friend who is aged' [Predicating Modifier Construction]

b. 'a friend for long time' [Domain Modifier Construction]

As can be noticed, *an old friend* essentially has two types of A-N constructions. In other words, the same A-N form indicates two different meanings. This one-to-many relationship in form and meaning is unproblematic from a *heterogeneous* Construction Grammar point of view (see Chapter 1). As claimed by Pustejovsky (1995) and Bouchard (2002), *old* as a domain modifier has already been conventionalised and the non-intersective interpretation is, in fact, relatively more preferential than the intersective one.

[40] One may notice whether or not the converse constructional blending (i.e. domain-identifying to predicating) can be observed. The answer is no. In this case, in fact, the domain modifier is not 'blended' with the predicating modifier, but it is straightforwardly 'converted' into a *true* adjectival predicate (i.e. qualitative adjective; e.g., *monochromatic* 'using only one colour' (domain modifier) > *monochromatic* 'drab, unvarying' (predicating modifier)). The so-called conversion analysis of domain adjective (cf. relational adjective) is basically examined morphologically (cf. Nagano (2018a, b)). See the detailed discussion in Chapter 4, where I also point out that there is a metaphoric reason for this in footnote 12.

However, *bright* of *bright taste* has not yet been conventionalised as a domain modifier and its domain-identifying function must be complemented by the effect of metonymy on the basis of a certain context. Once *bright taste* has established its constructional status as a domain modifier construction, *bright* can be simply interpreted as a domain modifier in the same way as *old* of *an old friend* 'a friend for a long time'. In this sense, the adjective can be regarded as being in a transition from a predicating to a domain modifier. Therefore, there is still a form-meaning gap in *bright taste*. The form is still a part of the predicating modifier construction, but the meaning is of the domain modifier construction, as provided in (72).

(72) Blended Domain Modifier Construction

a. Form: [A-N] (A = typically property-denoting)

b. Meaning: [Subcategorising] (cf. type-identifying)

In this way, the A-N expressions that we have analysed so far are qualitatively different from other A-N expressions that have been treated in detail in the previous studies. I argue that semantically peculiar A-N expressions such as *bright taste*, *sick room*, and *sad cigarette* are instantiations of the blended domain modifier construction as a third type of A-N construction. Incidentally, phrasal names such as *sick room*, *strong room*, and *high school* are conventionalised instantiations as blended domain modifier constructions; namely, they have already been established as ordinary domain modifier constructions.

3.4.6. Summary

Section 3.4 has illustrated the fact that semantically peculiar noun modification by predicating adjectives in attribution has 'covert' head nouns (or 'true' modifying targets) in common, which can be complemented by *frame evocation of the predicating modifier*

construction. We have argued that the reason why such predicating adjectives, in relation to their head nouns, behave like domain modifiers can be explained by metonymic extension based on the context, unless the expressions have been decontextualized over time (e.g. phrasal names).

Our analysis is further strengthened by Borkin's analysis of metonymous NPs and Bolinger's analysis of semantics of lexical items. The common factor discovered by both linguists are 'covert' head nouns and their semantic recoverability from a generative semantics perspective. In our view, this can be simply explained by the notions of *frames* and *constructions*. Covert head nouns in all relevant expressions are conceptually complemented by the relationship of *frames* evoked by each lexical item within a construction. In our examples, *frames* evoked by adjectives are determined by their lexical meanings in relation to the head nouns on the surface. However, if these adjectives do not really predicate a property of the head nouns, we look for their 'true' modifying targets contextually and pragmatically. Incidentally, metonymy can be generally involved in this kind of information-seeking process. It seems safe to say that even if there are no appropriate referents on the surface, predicating adjectives are always supposed to designate the referents of the explicit or implicit head nouns conceptually and in this sense, the predicating modifier construction is retained. Sullivan's (2013) account of metaphoric A-N expressions can thus be applied to the present semantically peculiar modificational expressions as well.

We have also argued that such semantically peculiar A-N expressions should be regarded as a third type of modifier-head construction, i.e. the blended domain modifier construction. This proposal follows from the fact that the semantic and interpretive differences between so-called 'nominal' coercion (e.g. *a fast typist* vs. *a male typist*) and 'adjectival' coercion (e.g. *delicious taste* vs. *bright taste*).

3.5. Implication

Finally, with respect to the case of Japanese in particular, we will show that our analysis has an interesting implication for the reason why predicating adjectives are required as domain modifiers in some cases, though they are non-canonical in Japanese. Recall from Section 3.2 that the domain modifier modification in Japanese can be observed in adjective-noun compounds. As shown in (73), when a Japanese adjective is used as a domain modifier, it should usually take a compound form (cf. Nishimaki (2018: §3.3.1)).

(73) Phrasal form vs. Compound form

a.	huru-i hon (old-I book)	vs.	huru-hon ‘secondhand book’	(cf. 古本)
b.	huru-i ie (old-I family)	vs.	kyuu-ka ‘ancient family’	(cf. 旧家)
c.	maru-i kao (circle-I face)	vs.	maru-gao ‘round face’	(cf. 丸顔)

Given this fact, if *akaru-i* in *akaru-i azi* is a domain-speicfying modifier, it should take a compound form. However, its compound form, as in (74a), sounds quite odd in Japanese. Furthermore, this fact also applies to other cases shown in (74b-d).

(74)

a.	akaru-i azi	vs.	??{myoo/mei}-mi	(cf. ??明味)
b.	oisi-i {ondo/osirase}	vs.	?bimi-ondo / ?? bimi-hoo	(cf. ?美味温度 / ??美味報)
c.	samu-i koe	vs.	?kan-sei	(cf. #寒声)[41]
d.	karu-i kusuri	vs.	?kei-yaku	(cf. ?軽薬)
e.	yasasi-i zikan	vs.	??yuu-zikan	(cf. ??優時間)
f.	kawai-i okane	vs.	??kawai-kin	(cf. ??可愛金)

[41] This compound has another reading such as *kan-goe*. In this reading, the meaning becomes felicitous and it thus means ‘the practicing voice of a person who is undergoing voice training during the middle of winter’.

Why do these adjectives resist taking compound forms? The reason can be captured by focussing on the difference in function between *words* and *phrases*. As often pointed out in previous studies, words have a naming function, whereas phrases have a describing function (see e.g. Bauer (2003)). What is important here is that names can be used and interpreted *context-freely* and that the phrasal expression in question is understood *context-dependently*; *akaru-i azi* can receive the intended meaning only with the contextual information and is difficult to generalise as a name of taste. Accordingly, this expression is forced to take a phrasal form, which labels 'azi (taste)' in a non-generic manner. This consideration explains why in such cases predicating adjectives are required to serve as domain modifiers, if only temporarily. The adjectives identify the semantic domain (i.e. reference) of a noun in a non-generic manner.[42]

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[42] Incidentally, the following recent data strongly support our analysis.

(i) a. atarasi-i nitizyoo
new-I daily life
'new normal'
b. ?? kono nitizyoo-wa atarasi-i.
this daily life-TOP new-I
'This normal is new.'

The A-N expression in (ia) has recently and frequently been observed in the Japanese mass media. The adjective *atarasi-i* 'new' is indeed semantically peculiar for the head noun *nitizyoo* 'daily life', as illustrated in the predicative form of (ib). The English counterpart can be *new normal* (cf. ??*the normal is new*; https://www.nippon.com/ja/in-depth/d00588/ [accessed on 27th August, 2020]. The relevant expression is explained on the website of the Consumer Affairs Agency as follows.

(ii) **atarasi-i** **seikatu-yoosiki**-no zissen-rei-o humaeta
new-I life style-GEN practical-example-ACC based on
atarasi-i **nitizyoo**-ni mukete…
new-I daily life-DAT towards…
'Towards the new normal on the basis of practices of a new life-style…'
(https://www.caa.go.jp/notice/entry/020002/ [accessed on 27th August, 2020])

As can be noticed, *atarasi-i nitizyoo* 'new normal' is paraphrased as *atarasi-i seikatu-yoosiki-no nitizyoo* 'the new life style of normal'. In this case, too, it is natural to assume that the true modifying target of *atarasi-i* is not *nitizyoo* 'normal' itself but *seikatu-yoosiki* 'life-style'. Thus:

(iii) a. atarasi-i nitizyoo < atarasi-i seikatu-yoosiki no nitizyoo
(cf. *kono seikatu-yoosiki-wa atarasi-i* 'the life-style is new')
b. new normal < normal with new standards

3.6. Summary of Chapter 3

To conclude, we have clarified, from a construction-based perspective, the semantico-pragmatic aspects of the peculiar noun modification by adjectives in English (e.g. *bright taste*) and Japanese (e.g. *akaru-i azi* 'bright taste'). Let us answer all the following questions raised in section 3.1 (cf. (22)):

(75) a. How do we interpret or construe semantically peculiar adjective-noun expressions such as *bright taste* and what kind of linguistic factors are involved in their peculiarity?

b. What part of the nouns do the adjectives modify in this type of expression? How is this possible?

c. How do these adjective-noun expressions differ from metaphoric or non-metaphoric ones?

For the first question, when we encounter this kind of expression, we realise a semantic conflict between the predicating adjective and the head noun, which prompts us to interpret it based on the context. The appropriate interpretation of such an adjective can be achieved by being a part of the context-dependently extended meaning (e.g. *bright taste* 'taste of meal in a bright

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(cf. *the standards are new*.)

The underlines in (iii) can be regarded as 'true' head nouns for the adjectives both in Japanese (iiia) and English (iiib) and they are thus telescoped.

Interestingly, however, the Japanese expression has already been observed in a compound form, as illustrated in (iv), which is cited from a survey of online courses taken in the University of Tsukuba.

(iv) sin-gata korona-uirusu kansensyoo hassyoo-go-no **sin-nitizyoo**-ni…
new-type corona-virus infection outbreak-after-GEN new-normal-DAT…
(https://manaba.tsukuba.ac.jp/ct/course_1537265_survey_1537509 [accessed on 30th July, 2020])

This fact tells us that the relevant A-N expression has already been conventionalised. Thus, the above data are naturally predicted by our analysis. Another recent example is the title of a film "*zikobukken kowa-i madori*" 'stigmatised property, scary layout' (https://movies.shochiku.co.jp/jikobukken-movie/)).

region like Sicily'). In this point, we have revealed the fact that predicating adjectives in this kind of expression turn into domain modifiers at an interpretive level. Concerning the second question, we look for the true modifying target in the context, which predicating adjectives can appropriately modify. The conceptual alternation of such an adjective from a predicating modifier to a domain modifier motivates the syntactic behaviour of adjectives in relation to the head nouns (e.g. unpredicability, adjacency to nouns, and lack of gradability). Therefore, even though the apparent form of the adjectives is that of predicating, they actually do not predicate a property of the head nouns on the surface, but rather they identify the semantic domain (i.e. reference) of the concepts denoted by the head nouns (e.g. bright qua taste = bright region-TYPE taste). Lastly, regarding the third question, this kind of expression differs from metaphoric or non-metaphoric ones in that it concerns metonymy. In other words, its intended reading in context can only be obtained through its metonymic extension.

This chapter is devoted to a contrastive construction-based grammar study in English and Japanese. We have clarified the fact that noun modification by adjectives in both languages has the same conceptual mechanism in essence. Specifically, regardless of whether the expressions are names (e.g. *sick room*) or not (e.g. *bright taste* or *sad cigarette*), it is common for the predicating adjectives to predicate a property of the 'true' referent of the noun which is conceptually complemented by frames based on the contextual or pragmatic information. In other words, the predicating modifier construction is always retained at an interpretive level based on frame evocation. In this sense, Sullivan's framework can be extended to semantically peculiar modificational expressions that have been analysed in this chapter. In the case of Japanese, particularly, because of the highly context-dependent characteristic, the relevant expressions must take a *phrasal* form to label the noun *in a non-generic manner*.

Chapter 4

Domain Modifier Constructions:

An Apparent Grammatical Peculiarity in Predication

4.1. Introduction[1]

In this chapter, we will analyse a grammatically peculiar behaviour of denominal modifiers in English and Japanese. We will focus particularly on the case of English in (1) and that of Japanese in (2), respectively.

(1) English

a. Relational Adjectives (RAs): e.g. *chromatic*, *colonial*

b. Prefixed Relational Adjectives (P-RAs): e.g. *monochromatic*, *anti-colonial*

(2) Japanese

a. Genitive Modifiers (N+-*no*): e.g. *komugi-no* 'wheaten'

b. Expanded Modifiers (N+classifiers+-*no*): e.g. *komugi-sei-no* 'made of wheat'

Although it is widely acknowledged that denominal modifiers in both languages lack the predicative use, there are some cases in which they can appear in predicate position. This will be observed in detail in Section 4.2. This chapter aims to answer the following questions.

(3) a. Why can some denominal modifiers in English and Japanese appear in predicate position? How can this be achieved?

[1] This chapter is a fully revised and extended version of Odagiri et al. (2019), Togano et al. (2019), and Ishida (2020).

b. Why can English prefixed relational adjectives (P-RAs), unlike non-prefixed ones, naturally occur in predicate position (e.g. *those drawing are monochromatic* vs. **those drawings are chromatic*)? What kind of factors are involved in this grammatical difference between the two types of RAs?

c. Are denominal modifiers in predicate position predicating modifiers? If so, how can this be achieved? If not, what are they?

For the above questions, we will try to find answers from the viewpoint of how the predicating modifier construction and the domain modifier construction are related to this kind of grammatically peculiar phenomenon. The main argument in this chapter can be summarised in the following three points:

(4) a. The domain modifier construction, associated with domain modifiers in both English and Japanese, is essentially retained even in predicate position.

b. It is the notion of contrast that is critically involved in domain modifiers' predicability.

c. The notion of contrast is evoked by either contextual information or specific grammatical elements (e.g., prefixes in English and classifiers in Japanese).

This chapter is organised as follows. Section 4.2 is the observation part. We will consider how English (P-)RAs and Japanese N+-*no* forms behave peculiarly. Section 4.3 overviews some previous studies. We will examine some crucial factors and conditions for licensing (P-)RAs' predicability here. Section 4.4. is the analysis part. On the basis of the facts pointed out by previous studies, we will connect them within a construction grammar framework and reveal the very mechanism of the reason why English (P-)RAs and Japanese

N+-*no* forms can appear in predicate position as essentially 'non-predicating modifiers'. Section 4.5 summarises the discussion in this chapter and touches on some remaining issues.

4.2. Peculiar Behaviour of Denominal Modifiers

In this section, we will observe how denominal modifiers in both English and Japanese behave and how their behavioural peculiarity differs from their canonical use. By observing these, we will point out why such denominal modifiers deviate from the norm of grammaticality.

4.2.1. The Case of English

Denominal adjectives in English can be divided into two types as in (5).

(5) a. Relational adjectives (RAs):[2] *senatorial*, *polar*, *algebraic*

b. Qualitative adjectives (QAs): *beautiful*, *picturesque*, *nervous*

(Plag (2003: 94), Nagano (2015: 3))

In comparison to QAs in (5b), whose main function is to *qualify* the referent of nouns, RAs in (5a) serve to *classify* a type of nouns (see Shimamura (2014), Nagano (2016)). These two distinct types of denominal adjectives can be considered parallel to the case of deverbal nominals. For example, there are two types of deverbal nominals: (complex) event nominals (e.g. *-ing*) and result nominals (e.g. *-ment*, *-tion*). Event nominals behave more like 'verbs' than result nominals, whereas result nominals behave more like 'nouns' than event nominals.

[2] The denominal adjectives in English analysed in this paper have been variously called as follows: relational adjectives (Bally (1944), Marchand (1966), etc.), 'pseudoadjectives' (Postal (1969, 1972)), 'attributive-only adjectives' (Bolinger (1967)), 'denominal adjectives' (Ljung (1970)), 'transposed adjectives' (Marchand (1969)), 'denominal nonpredicate adjectives' (Levi (1973)), 'associative adjectives' (Giegerich (2005, 2009)). This paper employs the term 'Relational Adjectives (RA)' as a type of domain modifier.

Let us look at the following pair of sentences.

(6) a. The examination of the patients took a long time.

b. The constant assignment of unsolvable problems is to be avoided.

(7) a. The examination was on the table.

b. The assignment is to be avoided.

(Grimshaw (1990: 49, 50))

For instance, the noun *examination* in (6a) is a complex event nominal, since it indicates an event reading and takes an argument *patients* as its base transitive verb *examine*. The noun *examination* in (7a), on the other hand, is a result nominal, since it has a referential reading and lacks an argument structure. This fact is true of the uses of *assignment* in (6b) and (7b); that is, the former as a complex event nominal and the latter as a result nominal. Thus, the two types of deverbal nominals differ in how much they maintain their categorial status as 'verbs'. In this sense, since RAs inherit considerably more nominal properties than QAs, they are regarded as 'noun-like adjectives', while QAs are 'typical adjectives'. RAs are formed by adding purely morphological suffixes borrowed from Romance languages, such as *-al*, *-ar*, *-ic*, and *-ical*, to the bases, and they directly modify nouns. It has long been acknowledged that there is no semantic difference between RA-N expressions in (8) and N-N expressions in (9).

(8) a. industrial output

b. cellular structure

c. senatorial leadership

d. budgetary item

(9) a. industry output

b. cell structure

c. senate leadership

d. budget item

(Beard (1995: 188))

For example, the RA-N *industrial output* in (8a) means 'output of an industry', and so does the N-N *industry output* in (9a). In addition, as mentioned above, the behaviour of RAs is almost equivalent to that of nouns in what follows (cf. Levi (1975, 1978), Beard (1995), Giegerich (2005, 2009), Bisetto (2010), Cetnarowska (2013), Shimamura (2014), Nagano (2015, 2016, 2018b):

(10) a. In modifying a noun, relational adjectives express a relation between the base noun and the head noun rather than a quality/property of the head noun.
e.g. industrial output 'output of an industry', senatorial election 'election of a senator', senatorial plane 'plane of a senator'

b. Relational adjectives lack predication possibility.
e.g. *this output is industrial, *this decision is senatorial

c. Relational adjectives lack gradability and comparativeness.
e.g. *a very industrial output, *more industrial

d. In modifying a noun, relational adjectives require strict adjacency to the modified noun in a unique position.
e.g. *wooden big table vs. big wooden table

e. Relational adjectives cannot be coordinated with qualitative adjectives.
e.g. *the big and wooden table

f. Relational adjectives cannot be used repeatedly.

e.g. *industrial industrial output

g. Relational adjectives do not potentiate further nominal affixation.

e.g. ??presidentialness, ??racialness

(cf. Nagano (2015: 3, 2016: 44))

These behaviours are completely different from those of QAs. In this study, we will pay particular attention to the property of (10b). RAs are known to lack the possibility of predication (i.e. predicability). This property has long been controversial and is one of the issues concerning RAs, because, as pointed out by Levi (1975, 1978), there are many cases where RAs may occur in predicate position. Thus:

(11) a. The process by which compounds are formed is transformational.

b. Her infection turned out to be viral.

c. His razor is electric.

d. Question formation in Finnish is morphemic.

e. The therapy David does is primarily musical.

f. That interpretation is presidential, not judicial.

(Levi (1978: 254))

Indeed, all the RAs in (11) unproblematically occur in predicate position. Levi (1975, 1978) argues, based on her meticulous observations, that RAs' predicability is conditioned by certain semantico-pragmatic factors. We will observe this in detail in Section 4.3. Moreover, one of Levi's remarkable findings is that RAs with numerical prefixes can also unquestionably appear in predicate position, unlike the forms without prefixes, as in (12) to (14):

(12) a. * That analysis is chromatic. (chromatic analysis)

b. Those drawings are monochromatic. (monochromatic drawings)

(13) a. * Those exports are national. (national exports)

b. Those agreements are binational. (binational agreements)

(14) a. * That structure is consonantal. (consonantal structure)

b. Those roots are triconsonantal. (triconsonantal roots)

(Levi (1978: 24))

Levi herself problematises the above asymmetrical behaviour between RAs (i.e. (a)-expressions) and P-RAs (i.e. (b)-expressions), though she clearly states that she does not have a convincing answer, whence the following question naturally arises: (i) why RAs normally cannot occur in predicate position; and (ii) what kinds of factors make it possible for RAs and P-RAs to occur in predicate position.

4.2.2. The Case of Japanese

Japanese, unlike English, does not have relational adjectives but corresponding denominal modifiers: Noun+-*no* form.[3] There are two types of this form in Japanese.

[3] Bisetto (2010) argues that the Japanese suffix *-teki* (-的) can be considered a relational adjectivaliser. Nagano (2016), however, argues that this suffix in contemporary Japanese basically derives qualitative adjectives. For example, observe the following English phrases in (i) and their Japanese counterparts in (ii) (Nagano (2016: 48)).

(i) a. the Japanese attack on Peral Harbour
b. Japanese democratization after World War II

(ii) a. * nihon-teki(-na) Sinzyu-wan koogeki
Japan-ADJ(-NA) Pearl Harbour attack
b. * dainizi sekai-taisen-go-no nihon-teki(-na) minsyuka
second world-war-after-GEN Japan-ADJ(-NA) democratization

When the relational adjective *Japanese* in (i) is translated into Japanese *-teki* adjectives as in (ii), the argumental interpretations of both (ia) and (ib) cannot be obtained. To maintain their intended argumental readings of *Japanese* in (i), Japanese should use the genitive construction or N-N compound.

Following Nagano (2016), we call the form of (15a) the *genitive modifier* and that of (15b) the *expanded modifier*.

(15) Two types of formation of denominal modifiers in Japanese

wheaten bread: 'N2 made of N1' (Material)

a. Genitive modifier: N+-*no*

komugi-no pan

wheat-GEN bread

b. Expanded modifier: N+classifier+-*no*

komugi-sei-no pan

wheat-made-GEN bread

(cf. Nagano and Shimada (2015), Nagano (2016))

We have already investigated the case of genitive modifier in Chapter 3 (e.g. *ki-no hasi* 'wooden bridge'). As for the expanded modifier in (15b), this can be regarded as formally expanded from the genitive form "by the insertion of a bound marker of a specific semantic relation" (Nagano (2016: 54)). We will call this bound marker 'classifier' here. The RA *wheaten* of *wheaten bread* can be expressed either by the genitive version in (15a) or by the expanded version in (15b). The classifier -*sei* (製) in (15b) here indicates a specialised meaning 'made-

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The genitive version is represented in (iii).

(iii) a. nihon-no Sinzyu-wan koogeki
Japan-GEN Pearl Harbour attack

b. dainizi sekai-taisen-go-no nihon-no minsyuka
second world-war-after-GEN Japan-GEN democratization

On this basis, Nagano (2016) concludes that -*teki* has already been established as a qualitative adjectivaliser. Indeed, -*teki* behaves in the same way as other denominal adjectival suffixes such as -*ppoi* (e.g. *kodomo-ppoi* 'childish, immature'), -*rasii* (e.g. *kodomo-rasii* 'childlike, innocent'), and -*tikku* (e.g. *manga-tikku* 'manga-like') (Nagano (2016: 51)). See Nagano (2016) and Nagano and Shimada (2015) for further detailed discussions.

of'. Other similar examples are given in (16)–(18).

(16) *viral infection*: 'N2 of the type of N1' (Type, Nature)

a. uirusu-no kansensyoo

virus-GEN infection

b. uirusu-sei-no kansensyoo

virus-type-GEN infection

(17) *Slavic language*: 'N2 in the line or family of N1' (Genealogy, Family, Group)

a. surabu-no gengo

Slav-GEN language

b. surabu-kei-no gengo

Slav-line-GEN language

(18) *European economy*: 'N2 of the type of N1' (Type, Kind)

a. yooroppa-no keizai

Europe-GEN economy

b. yooroppa-{gata/ryuu}-no keizai

Europe-type-GEN economy

(cf. Nagano (2016: 52–53))

The RA *viral* in (16) can be translated in Japanese either by the genitive modifier in (16a) or by the expanded modifier in (16b).[4] The same applies to (17) and (18) as well. Japanese has

[4] Note that English RA-N expressions such as those in (16) to (18) can also be translated into Japanese such as N-N compounds, e.g. *viral infection* (uirusu-kansensyoo 'virus infection'), *Slavic language* (surabu-gengo 'Slav language'), *European economy* (yooroppa-keizai 'Europe economy').

various kinds of classifiers as in (19).

(19) Classifiers in Japanese

a.	Material:	*-sei* (製) ‘made of’, *-iri* (入) ‘containing’
b.	Origin:	*-sei* (製) ‘made in’
c.	Shape / Size:	*-kei* (形) ‘shaped’, *-gata* (型) ‘shaped, sized’
d.	Taste:	*-azi* (味) ‘taste’, *-huumi* (風味) ‘flavor’
e.	Colour:	*-syoku* (色) ‘color’, *-iro* ‘color’
f.	Type / Kind:	*-sei* (性) ‘type, nature’, *-gata* (型) ‘type’, *-kei* (系) ‘kind’, *-shu* (種) ‘kind’
g.	State:	*-zyoo* (状) ‘state’
h.	Belonging:	*-ha* (派) ‘group, school’, *-kei* (系) ‘line’
i.	Possession:	*-tuki* (付き) ‘with’, *-moti* (持ち) ‘with’, *-ari* (有り) ‘with’, *-nasi* (無し) ‘-less, without’, *-darake* ‘-ful, -ridden’
j.	Purpose / Target:	*-yoo* (用) ‘for’
k.	Place / Time:	*-tyuu* (中) ‘inside, during’, *-kan* (間) ‘during’
l.	Status:	*-tosite* ‘as’
m.	Topic:	*-zyoo* (上) ‘on, about’, *-garami* ‘about, related to’, *-kanren* (関連) ‘related to’
n.	Similarity:	*-huu* (風) ‘like’, *-ryuu* (流) ‘like, in the style of’

(Nagano (2016: 56–57), cf. Shimada and Nagano (2018), Shimada (2004: Ch.5))

The two types of denominal modifiers in Japanese normally have parallel behaviour similar to that of English RAs. Thus:

(20) Lack of gradability

a. * totemo komugi-no pan

very wheat-GEN bread

b. * totemo komugi-sei-no pan

very wheat-made-GEN bread

(cf. Nagano (2016: 58))

(21) Lack of nominalisation

a. * kono pan-no {komugi-sa / komugi-no-sa}

this bread-GEN {wheat-NMLZ / wheat-GEN-NMLZ}

b. * kono pan-no {komugi-sei-sa / komugi-sei-no-sa}

this bread-GEN {wheat-made-NMLZ / wheat-made-GEN-NMLZ}

(cf. Nagano (2016: 58))

The (a)-examples in (20) and (21) are those of genitive modifiers, lacking both gradability and nominalisation. Likewise for the (b)-examples in (20) and (21), those of expanded modifiers. However, regarding predicability, they show a stark contrast as illustrated in (22a) and (22b).

(22) Predicability

a. * ano tihoo-no pan-wa komugi-no-da.

That region-GEN bread-TOP wheat-GEN-be.PRES

'Bread of that region is wheaten bread.'

b. ano tihoo-no pan-wa komugi-sei(-no)-da.

That region-GEN bread-TOP wheat-made(-GEN)-be.PRES

'Bread of that region is wheaten bread.'

(Nagano (2016: 59))

While the genitive modifier in (22a) cannot occur in predicate position, the expanded modifier in (22b) can.

4.2.3. Summary

In this section, we have observed some peculiar behaviour of denominal modifiers in both English and Japanese. In the case of English, not only relational adjectives but also prefixed ones can occur in predicate position. However, in order for RAs to appear in predicate position, they need some modifiers or other grammatical elements (see (11)), whereas P-RAs do not necessitate this condition. This fact is also confirmed in the case of Japanese. While the expanded modifiers can occur in predicate position unproblematically, the genitive modifiers need some other grammatical elements.

From the perspective of Construction Grammar, as we have observed in Chapter 2, denominal modifiers are always associated with the domain modifier construction, since they do not show predicability canonically. However, under some specific conditions or rules, such non-predicating modifiers can appear in predicate position. We should identify what kind of factors license this kind of grammatical behaviour. Before stepping into our own analysis, we will review some important analyses in previous studies in the next section.

4.3. Some Explanations for Predicability of Domain Modifiers

This section overviews some previous studies that treat the predicability of (P-)RAs and that of Japanese denominal modifiers in detail. We mainly outline how Levi (1975,1978) explains the phenomenon.

4.3.1. The Reason for Lack of Predicability

To begin with, we should roughly understand the reason why RAs cannot essentially

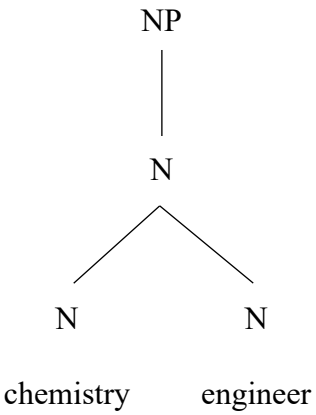
occur in predicate position. From a generative semantic point of view, it is ascribed to their derivation processes (Levi (1975: 1)). Let us consider this based on the example in (23).

(23) a. a chemical engineer

b. * that engineer is chemical

Taking the example in (23), Levi argues that the underlying N-N structure *chemistry engineer* is dominated by a single N-node, thus this inseparable sisterhood relationship makes the RAs unable to appear in predicate position. This can be diagrammed as in (24).

(24)



(Levi (1978: 143), with modifications)

In other words, Levi's (1975, 1978) main argument seems to be that the N-N structure should be considered a single noun and the form of RA is simply morphologically adjusted as a direct attributive modifier for the head nouns. The derivation process can be roughly sketched as follows:

(25) a. engineer of chemistry

b. of-chemistry engineer

c. chemistry engineer

d. chemical engineer

Levi (1978) argues that adjectivalisation (i.e. the RA formation from (25c) to (25d)) is morphologically adjusted at a very surface level; therefore, there is no semantic difference between the N-N (*chemistry engineer*) and the RA-N (*chemical engineer*). This is the very reason why she refers to the different kinds of nominals (i.e. N-N compounds: *apple cake*, Nominalisation: *American attack*, RA-N: *electrical engineering*) as the same class and calls them *Complex Nominals*. We will discuss their semantics in detail in Chapter 6.

Keeping this in mind, we will next investigate how previous studies analyse the grammatically peculiar phenomenon, where such RAs, in fact, occur in predicate position.

4.3.2. Relational Adjectives in Predicate Position

We should begin by observing how Levi (1978) attempts to explain the predicability of RAs. She points out that the RAs in predicate position "are derived by *ellipsis* from their usual prenominal position […]" (Levi (1978: 255), italicising mine). In Levi's transformational analysis, the ellipsis (i.e. head noun ellipsis) is applied at a very surface level and, as the arrow indicates, the formation process can be sketched as follows:[5]

[5] We will investigate the detailed derivation process in Chapter 6.

(26) Her infection is an infection caused by a virus.

Her infection is a virus-caused infection.

Her infection is a virus infection.

Her infection is a viral infection.

Her infection is viral.

(Levi (1978: 255))

Thus, RAs maintain their prenominal modification even in predicate position and they "are subsequently left stranded when their head nouns are deleted […]" (Levi (1978: 255)). Levi (1978) gives a detailed explanation, specifying the following three conditions for this phenomenon.

First, the subjects of the sentence and the RAs left stranded in predicate position should be well-established as a class name. For example, the RA *chemical* in (27a) has created an entrenched name with the noun *engineers* but not with others (i.e. ?*chemical agents*, ?*chemical relatives*). The same is true of *theatrical agents* in (27b) (i.e. ?*theatrical engineers*, ?*theatrical relatives*).

(27) Class establishment

a. {Our engineers / *Those agents / *My relatives} are all chemical.

b. {Those agents / *Our engineers / *My relatives} are all theatrical.

(Levi (1978: 256))

Second, subjects should be definite; thus, all the examples in (28), whose subjects in their relative clauses are indefinite, are not acceptable.[6]

[6] Note that the term 'definiteness' seems slightly puzzling because it sometimes includes such

(28) Definiteness

a. I wish I had some {musical talent / *talent that was musical}.

b. Rita wants to edit a {linguistic journal / *journal which is linguistic}.

c. We're tempted to press {criminal charges / *charges that are criminal}.

d. The prize money is for {regional novelists / *novelists who are regional}.

(Levi (1978: 258))

Third, the RAs in predicate position "are consistently and markedly more acceptable when used in an explicit or implicit comparison than when they are used alone" (Levi (1978: 260)). Let us observe the explicit case in (29) first. In the example of (29a), in terms of *infection*, *viral* is compared to *bacterial* by a *not*-phrase. This overt contrastive relation between *viral* and *bacterial* contributes to inducing the ellipsis of the head noun (i.e. *infection*). This holds for the other examples in (29) as well. Thus:

(29) Explicit contrast

a. Her infection turned out to be {viral, not bacterial / viral}.

b. The strongest drives toward pollution control have been {governmental rather than industrial / governmental}.

c. Our firm's engineers are all {mechanical, not chemical / mechanical}.

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classes as articles, demonstratives, and quantifiers. If this condition were quite strong, how could we explain the examples in (10b) (e.g. **the output is industrial*)? In relation to a deictic expression, the timing of when RAs' *classifying function* is observed may play an important role here. This idea was provided by Nobuhiro Kaga (University of Tsukuba, personal communication). In addition, from a semantic point of view, Akihiko Sakamoto (Tokyo Denki University, personal communication) points out that the notion of *constituency* may be deeply involved in the issue. He points out that, if the substance denoted by an RA (e.g. *virus* < *viral*) can be considered to be one of the 'crucial' constituents for the reference of the head noun (e.g. *infection*), the RA can be in predicate position (e.g. *the infection is viral*). This kind of idea is similar to the notion of 'class establishment', as explained by Levi (1978). A detailed account of the exact reason why RAs cannot be used in a predicative manner, however, should be left for future research.

d. That interpretation of the subpoena is {presidential, not judicial / presidential}.

Moreover, there are some cases where RAs show predicability without such an overt contrastive element (i.e. a *not*-phrase). For example, when the adverb *primarily* modifies the RA *musical* in (11e), the acceptability of the whole sentence is better than where the RA is in predicate position alone. Some other adverbial modifiers (i.e. *mostly*, *mainly*) can modify RAs also, as in (30b, c).

(30) Implied contrast

a. The therapy he does is {primarily musical / ?musical}.

b. The novelists we studied were {mostly regional / ?regional}.

c. The equipment they sell is {mainly culinary / ?culinary}.

(Levi (1978: 260))

However, the adverbials should not indicate gradability or scalarity because RAs are known as non-gradable adjectives (see (10c)). These adverbials actually neither add semantically gradable information to RAs nor make RAs gradable adjectives (i.e. QAs), but implicitly classify what the combination of RAs and nouns indicates in context. Regarding (30a), for example, when there is a primary therapeutic remedy in his clinic and it is musical therapy, we can easily assume that there are other alternative means of therapy he performs, such as *hormonal*, *animal*, *herbal*, and *aromatic*. Additionally, Levi (1978) points out that negation can also imply contrasts.

(31) Negation (implied contrast)

a. I wish I had some talent that wasn't musical.

b. Rita wants to edit a journal which isn't linguistic.

c. ? The prize money is for novelists who are not regional.

(Levi (1978: 261))

For example, in (31a), since the speaker's desired *talent* is not *musical talent*, it can be assumed that what he or she really wishes is a different type of *talent* such as *linguistic*, *mathematical*, *physical*, or *comical*. Accordingly, Levi's (1978) analysis of the ellipsis of head nouns can be reduced to the above three conditions (i.e. (i) class-establishment; (ii) definiteness; (iii) contrast). Nagano (2018b) also focuses on this phenomenon and further generalises the above three conditions into one from a pragmatic point of view.

Nagano (2016, 2018b) points out that the example in (32) may also be a case of head noun ellipsis. Specifically, the quantificational modifier *75 percent* in (32a) and the subject of the sentence *75 percent of French electricity* in (32b) yield an implied contrast.

(32) a. French electricity is 75 percent nuclear. (Nagano (2016: 45))

b. 75 percent of French electricity is nuclear.

(Shimada and Nagano (2018: 80), cf. Bauer et al. (2013: 318))

In this case, the quantifier *75 percent* functions just like an adverbial such as *primarily* or *mainly*. Thus, we can infer that the remaining *25 percent* of French electricity may rely on different energy sources (e.g. *hydraulic*, *wind*, *terrestrial*, *thermal*, *solar*).

Nagano (2018b) attempts to show how the above three conditions can be reduced to a more theoretical explanation. She suggests D(iscourse)-linked *wh*-questions (i.e. *Which type* ~?; cf. Harada (1973), Pesetsky (1987)). The sentences in question are seen as answers to questions like those in (33) (Nagano (2018b: 194)).

(33) a. Which type of infection was her infection?

— Her infection turned out to be viral.

b. Which type of razor does he favour?

— His razor is electric.

As Nagano (2018b) summarises, "a D-linked question is posed based on a presupposition of a set of specific alternative candidates for the question item, and the respondent picks one from the set in giving an answer" (Nagano (2018b: 194)). This can be applied to the case of class-establishment (see (27)). For example, when the sentence *Our engineers are all chemical* in (27a) is used as an answer to the question *What kind of engineers does your company already have?*, it sounds quite natural (Nagano (2018b: 194)). That is, the speaker answers this question by choosing one of the alternative set of *engineers* (e.g. {*mechanical* / *chemical* / *electrical* / *sanitary*} *engineers*). Hence, the three conditions advocated by Levi, which allow RAs to occur in predicate position, can be reduced to D-linked questions; namely, the adjectives in question can be left stranded in predicate position as an answer to a given D-linked question.

We have reviewed how some previous studies have dealt with RA's predicability. Levi (1978) points out the three factors licensing this and Nagano (2018) claims that they can be reduced to one pragmatic effect (i.e. the D-linked question).

4.3.3. Prefixed Relational Adjectives in Predicate Position

In this section, we consider how P-RAs' predicability has been analysed in previous studies and point out the following two problems: (i) there are other cases to which the analysis cannot be applied; and (ii) there is another issue of how to distinguish RAs in predicate position from QAs.

Levi (1975) attempts to explain this with her particular attention only to the case of

numerical prefixes. As far as I know, P-RA's predicability, unlike RA's predicability, has never undergone a thorough grammatical analysis except for her. In comparison to the case of RAs, Levi (1975) analyses P-RAs in predicate position differently. She explains that P-RAs are actually interchangeable with complex VPs comprising the predicate HAVE, numerals, and base-nouns (Levi (1975: 324–327)). Let us observe this in (34).

(34) a. monochromatic drawings = drawings which have one colour
b. bicameral legislature = legislature that has two chambers
c. trisyllabic verbs = verbs which have three syllables
d. quadrifoliate plants = plants which have four leaves
e. multiracial population = population which has several races
f. multicellular organism = organism which has several (or more) cells

(Levi (1975: 324))

For example, the P-RA *monochromatic* in (34a) denotes 'HAVE one colour' and the paraphrase is followed by Levi's (1975) complex VP analysis. The same is true of the other examples in (34). The predicate HAVE appearing in (34) is one of Levi's nine specific predicates (Recoverably Deletable Predicates; CAUSE, MAKE, IN, FOR, etc.) which are used to derive the relevant NPs. The detailed discussion with respect to the set of these predicates will be treated in detail in Chapter 6.

The first problem is that there are other cases where the analysis based on the predicate HAVE cannot be applied, despite the fact that the prefixes in question are indeed numerical. This problem is in fact already pointed out by Levi (1975) herself. Thus:

(35) a. binational agreements = two nations agree (on X)

b. trinational coverage = X covers three nations

c. multilateral talks = many sides talk

d. unipolar motion = motion on one plane

e. omnidirectional transmitter = X transmits {in / to} all directions

f. multilingual dictionary = dictionary for several or more languages

(Levi (1975: 324))

Levi's predicate alternation analysis does not cover the cases in (35). For example, *binational agreement* in (35a) does not mean 'agreements HAVE two nations' because it is the two nations that agree on something. We see the same issue in the rest of the examples in (35). We, therefore, cannot employ Levi's HAVE analysis for P-RA's predicability as a whole.

Moreover, we can easily find that other types of prefixes behave like numerical ones as shown in (36).

(36) a. The consideration of Fallacies is extralogical. (*OED*, s.v. *extralogical*)

b. ... a philosophy demanding that utilities shall be prosocial and brought forth ...

(*OED*, s.v. *prosocial*)

c. This is why classic Australian fiction, which at its best is anti-colonial and ....

(*The Guardian*)[7]

d. The patient subsequently regained his preoperative weight, is nondiabetic, and requires pancreatic supplements (Viokase). (Owens and Wolfman (1973))

[7] *The Guardian*: Retrieved from https://www.theguardian.com/commentisfree/2013/nov/28/cruelty-its-part-of-the-australian-experience [accessed on 30th March, 2019].

All the prefixes in (36) are not numerical ones. Thus, it is obvious that these P-RAs are not derived from the specific VP 'HAVE + numerals + base-nouns', as suggested by Levi (1975).

Second, if we adopted Levi's analysis and assumed that the derivatives originated in the same bases, there would be no structural difference between RAs and QAs. If so, we need to argue that the difference between them must result from another theoretical base. Notice that *monochromatic* has already established its meaning as a QA in its extended use (*OED*, s.v. *monochromatic*). Let us take *monochromatic drawings* as an example in (37).

(37) Those drawings are monochromatic. (cf. monochromatic drawings)

a. RA reading: 'drawings which have one colour' (cf. (34a))

b. QA reading: 'drawings which are drab (unvarying)'

The sentence in (37) can be interpreted in either the RA reading as in (37a) or the QA reading as in (37b). This fact also makes Levi's original analysis problematic in that it is still unclear whether the P-RA in predicate position is an RA or a QA. That is, if *monochromatic* in predicate position only has a QA reading (i.e. 'drab, unvarying'), there is no room for Levi's predicate analysis to be applied.

Regarding P-RAs in predicate position, let us summarise the two problems with Levi's (1975) analysis as follows: (i) there are P-RAs where the VP alternation analysis (HAVE + numerals + base-noun) cannot be applied; and (ii) it is difficult to distinguish P-RAs we should refer to as a type of RAs from those we should refer to as a type of QAs (cf. predicating adjectives).

4.3.4. Japanese Denominal Modifiers in Predicate Position

Let us reconsider the different behaviours between the genitive (i.e. N+-*no*) and expanded

modifiers (i.e. N+classifiers+-*no*) in predicate position in (38), which is repeated from (22).

(38) *komugi-no pan* 'wheaten bread'

a. * ano tihoo-no pan-wa komugi-no-da.
That region-GEN bread-TOP wheat-GEN-be.PRES
'Bread of that region is wheaten bread.'

b. ano tihoo-no pan-wa komugi-sei-no-da.
That region-GEN bread-TOP wheat-made-GEN-be.PRES

(cf. Nagano (2016: 59))

In comparison to the expanded modifier in (38b), the genitive modifier in (38a) cannot occur in predicate position. Notice, however, that, as argued by Nagano (2016: 59), the genitive modifier in (38a) can be in predicate position in some cases. We will discuss this in later sections. Here, we will focus on the following problematic examples, where the acceptability of the genitive modifier becomes considerably higher because of the occurrence of other modifiers.

(39) Co-occurrence of the negative *no-dewanaku* phrase

a. ano tihoo-no pan-wa raimugi-no-dewanaku komugi-no-da.
That region-GEN bread-TOP rye-GEN-not.but wheat-GEN-be.PRES
'Bread of that region is not rye bread, but wheaten bread.'

b. ano tihoo-no pan-wa raimugi-no-dewanaku komugi-sei-no-da.
That region-GEN bread-TOP rye-GEN-not.but wheat-made-GEN-be.PRES
'Bread of that region is not rye bread, but wheaten bread.'

In comparison to (38a), in (39a), even though the genitive modifier appears in predicate position, the sentence is acceptable, which seems to be due to the presence of the negative *no-dewanaku* phrase. This condition does not affect the acceptability of the expanded modifier in (39b). Furthermore, as pointed out by Nagano (2016), the sentences in (40) can also be acceptable.

(40) Co-occurrence of quantificational modifiers

a. ano tihoo-no pan-wa {daibubun / 75%} komugi-no-da.
That region-GEN bread-TOP {mostly / 75%} wheat-GEN-be.PRES
'Bread of that region is {mostly / 75%} wheaten.'

b. ano tihoo-no pan-wa {daibubun / 75%} komugi-sei-no-da.
That region-GEN bread-TOP {mostly / 75%} wheat-made-GEN-be.PRES
'Bread of that region is {mostly / 75%} wheaten.'

(cf. Nagano (2016: 59))

Indeed, when quantificational modifiers such as *mostly* or *75%* co-occur, as in (40a), the grammaticality of the genitive modifier in (40a) is improved. This condition also does not influence the acceptability of the expanded modifier in (40b).

Nagano (2016: 58–59) explains that the head noun *pan* 'bread' of *komugi-no pan* 'wheaten bread' can actually be replaced by the light noun *mono* 'one', as shown in (41).

(41) a. ano tihoo-no pan-wa komugi-no mono-da.[8]
That region-GEN bread-TOP wheat-GEN one-be.PRES

[8] One may judge the expression in (41a) to be slightly odd. Since *pan* 'bread' is normally made from *komugi* 'wheat', such an expression sounds a little redundant or uninformative. However, if there are a variety of raw materials that can be used to make bread (e.g. *raimugi* 'rye', *oomugi* 'barley', *karasumugi* 'wild oats') and we need 'wheaten' bread for a certain reason, the expression in question may be acceptable and informative.

'Bread of that region is wheaten bread.'

b. ano tihoo-no pan-wa komugi-sei-no mono-da.
That region-GEN bread-TOP wheat-made-GEN one-be.PRES

(cf. Nagano (2016: 58–59))

When *mono* 'one' appears, both the genitive modifier in (41a) and the expanded modifier in (41b) are acceptable. As discussed by Nagano (2016), we can assume that the elliptical use of head nouns is a reasonable account of the relevant denominal modifiers in predicate position. Given this view, however, we have not yet reached a satisfiable position to explain the behavioural difference between (38a) and (38b).[9]

In sum, genitive modifiers are normally unacceptable in predicate position, as in (38a), whereas this unacceptability can be improved by their co-occurrence with certain elements, as in (39a) and (40a). However, there is no such grammatical contrast in the case of expanded modifiers. How then can we capture the different behaviour of these two types of denominal modifiers in Japanese?

4.3.5. Summary

In this section, we have overviewed how previous studies analyse English and Japanese denominal modifiers in predicate position. With respect to RAs, some pragmatic factors such as explicit or implicit contrast, established class, negation, and D-linked questions seem to be highly involved. As for P-RAs, the HAVE predicate analysis seems effective, but we have pointed out some problems with this kind of analysis. We have also taken up Japanese

[9] Unlike (P-)RAs in English, Japanese denominal modifiers do not seem to have QA counterparts because Japanese predicating adjectives are formed by *-i* or *-na* as a conjugational ending (see e.g. Tsujimura (2014: 131)). Thus, as argued by Nishimaki (2018), with respect to the realization pattern of adjectival modification in both English and Japanese, Japanese is a "morphology-preferring language", whereas English is a "syntax-preferring language". See Chapter 3 for related discussion.

denominal modifiers and acknowledged that the elliptical use of head nouns seems to be closely related to the relevant modifiers' predicability. However, it seems difficult to explain the different grammatical behaviour between the genitive modifier (i.e. N+-*no*) and the expanded modifier (i.e. N+classifiers+-*no*) in terms of predicability.

On the basis of these facts, we then analyse them and provide a systematic explanation for the grammatical peculiarity in both English and Japanese from a construction-based point of view in the next section.

4.4. Analysis

In this section, solving Levi's analytic problems of P-RAs in predicate position, we will analyse the grammatical peculiarity of RAs and P-RAs systematically. Furthermore, we will take the case of Japanese into account and provide a general principle for both English and Japanese denominal modifiers in predicate position in terms of the theory of Construction Grammar. Before tackling the issue, let us first recall the generalisation that we have made in Chapter 1.

(42) The General Principle of Noun Modification by Adjectives

Adjectives in noun modification must be construed in such a way that they intrinsically preserve their constructional properties as modifiers.

a. Even in some semantically or grammatically peculiar cases, the principle is satisfied at an interpretive level.

b. In such cases, the constructional properties of modifiers are merely covert and extra-constructional factors are heavily involved.

On this basis, we will argue that the predicability of P-RA can be explained precisely by the

same principle which is found in the case of RAs and that the constructional properties associated with denominal modifiers still remain even in predicate position. Introducing the important concept of *contrast*, we will demonstrate this by adducing some significant evidence. In terms of noun modification by domain modifiers, it will be shown that the domain modifier construction is maintained even in predicate position by the notion of contrast, an extra-constructional factor, which can be evoked by either pragmatic or contextual information (i.e. frame knowledge), or grammatical elements such as prefixes in English and classifiers in Japanese.

4.4.1. Domain Modifier Constructions in Predicate Position

In the previous section, we have confirmed the fact that denominal modifiers in predicate position still retain their subsective reading. From a heterogeneous Construction Grammar point of view, the discussion there can be paraphrased as follows: the constructional properties of denominal modifiers are still maintained even in predicate position in essence. This indicates that the head nouns of domain modifier constructions are merely 'covert', as illustrated in (43).

(43) X *be* (P-)RAs ~~N~~.

Such an indication naturally follows what a heterogeneous Construction Grammar offers (i.e. a construction consists of an autonomous form structure and an autonomous meaning structure). From this perspective, recall that even if an expression lacks a certain grammatical element in its form, the meaning can be recoverable based on certain pragmatic or discourse relevant information (i.e. frames). In this sense, a heterogeneous approach allows us to analyse many kinds of form-meaning gaps in expressions.

Let us then schematically illustrate the cognitive mechanism of (43) and its constructional relationship in Figure 4.1.

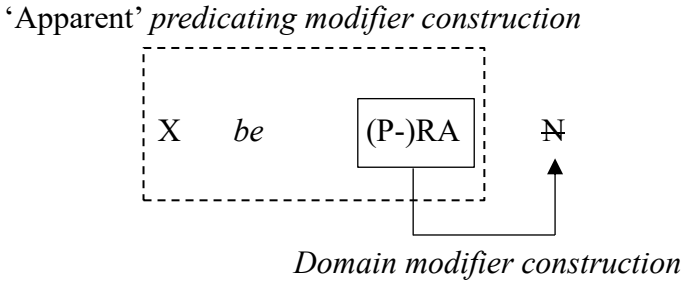

Figure 4.1. Modification relations and constructions of (P-)RA-N

Since the domain modifiers (P-RAs and RAs) occur in predicate position, the 'apparent' predicating modifier construction is confirmed on the surface, as indicated by a dotted-line square. However, because of the intended subsective reading (e.g. *those drawings are monochromatic*; 'drawings which have one colour' vs. #'drawings which are drab'), it is natural to assume that the domain modifier construction is, in fact, still preserved in predicate position. Put differently, unless domain modifiers obtain the status of QAs (i.e. 'true' predicating adjectives), they are always domain modifiers regardless of their syntactic position; namely, domain modifiers function as prenominal modifiers even in predicate position.

I argue that such an analysis can be applied to Japanese as well. By taking this analysis, the relevant construction is schematically represented as in (44).

(44) X-*wa* N (+ classifier) + -*no* ~~mono~~-*da*.

The surface construction appears to be the predicating modifier construction. However, since the covert use of *mono* 'one' is applied, the precise constructional relations can be depicted as

in Figure 4.2.

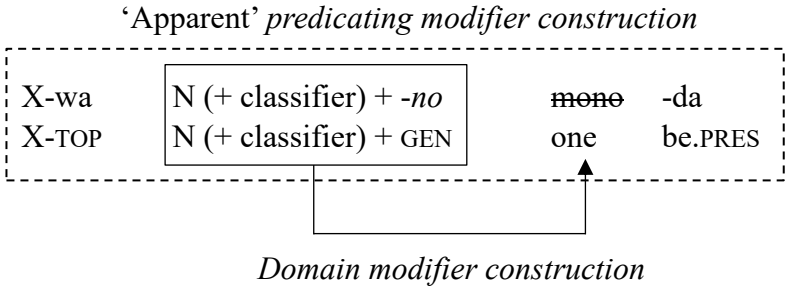

Figure 4.2. Modification relations and constructions of [N (+ classifier) + *-no*]-N

As can be noticed from Figure 4.2, the relevant Japanese expression 'apparently' represents the predicating modifier construction on the surface, but the domain modifier construction is in fact retained because of the covert head nouns. In this sense, I argue that both English and Japanese have the same conceptual mechanisms and constructional relationships.

In terms of the domain modifiers' predicability, we should recall here some important pragmatic and contextual factors pointed out in previous studies. They are concisely summarised in (45) for the sake of reference.[10]

(45) Factors inducing N-ellipsis

a. Class establishment (cf. (27))

e.g. {Our engineers / *Those agents / *My relatives} are all chemical.

b. Definiteness (cf. (28))

[10] The notion of *informativity* (cf. conversational pragmatics) may be closely related to the present topic and the factors in (45). Seizi Iwata (Kansai University, personal communication) points out to me that the (P-)RA's predictability should be analysed in the discussion of 'obligatory adjuncts' (e.g. #*a built house* vs. *a recently built house*; ?*headed boy* vs. *red-headed boy*, Goldberg and Ackerman (2001: 798, 811)). However, the analysis of the relationship between the notion of contrast (or informativity) and the factors inducing N-ellipsis is left for future research.

e.g. I wish I had some {musical talent / *talent that was musical}.

c. Explicit contrast (cf. (29))

e.g. Her infection turned out to be {viral, not bacterial / viral}.

d. Implicit contrast (cf. (30))

e.g. The therapy he does is {primarily musical / ?musical}

e. Negation (cf. (31))

e.g. I wish I had some talent that wasn't musical.

f. D-linked question (cf. (33))

e.g. Which type of infection was her infection? — Her infection turned out to be viral.

Here, I do not claim that all the above factors are actually derived from only one principle, but I would rather suggest that they can be captured in terms of the notion *contrast*. For example, some contrastive factors including negation in (45c-e) can easily be connected to this. The D-linked question in (45f) can be a 'type-asking' question. This kind of question forces the listener to answer by selecting at least one from a set of alternatives (e.g. *I choose X, not Y or Z*). This way of thinking is quite similar to the contrastive factors as in (45c-e). As for (45a) and (45b), I refer to these factors as supplementary factors, so we will not examine these here.

In sum, under certain contrastive environments, the head nouns can be covert, and the domain modifiers appear to occur in predicate position alone. Specifically, I argue that even though the head nouns are covert, they can be conceptually supplemented by our frame knowledge, in which case an extra-constructional factor *contrast* is crucially involved and it is this factor that enables the domain modifiers to occur in predicate position alone. From a cognitive point of view, the domain modifiers in this case are 'foregrounded' or 'focussed' (cf. profile), while the head nouns are 'backgrounded' or 'defocussed' (cf. base). Because of this

conceptual asymmetry, such an apparent peculiar grammatical behaviour is induced. This consequence successfully follows the general principle in (42).

We then should clarify how the head nouns can be covert. This necessitates us to employ the so-called ellipsis (i.e. covert) analysis of head nouns (henceforth, Nominal ellipsis (N-ellipsis)). Having employed the N-ellipsis analysis, we can give the reason for domain modifier's predicability in a simple way.

4.4.2. Nominal Ellipsis Constructions in English and Japanese

I claim that a common and significant assumption in the previous studies reviewed in Section 4.3 is the elliptical use of head nouns (i.e. N-ellipsis analysis). In this section, we consider how the N-ellipsis can be implemented under some conditions and investigate such a mechanism in detail (cf. Sleeman (1996), Bouchard (2002), Alexiadou and Gengel (2012), amongst others).

First of all, let us outline what elliptical constructions are. As explained by Goldberg and Perek (2019: 188), "elliptical constructions are formal patterns in which certain syntactic structure that is typically expressed is omitted". There are many kinds of constructions that involve ellipsis as in (46).

(46) a. French kids eat spinach and ours <u>can too</u>. [Verb phrase ellipsis]

b. He said that I was "different." He <u>didn't say how</u>. [Sluicing]

c. A: "You made me what I am today." B: "<u>And you me</u>." [Gapping]

d. George Greenwell was a patriot <u>but not a fool</u>. [Stripping]

e. His front teeth seemed to protrude <u>more than Henry remembered</u>. [Comparatives]

(Goldberg and Perek (2019: 189, Table 8.1))

Ellipsis constructions are generally motivated by the recoverably omitted information based either on a syntactic phrase or clause (Chomsky (1964, 1965), Katz and Postal (1964), Hankamer and Sag (1976)), or on the extra-linguistic context (Dalrymple et al. (1991), Culicover and Jackendoff (2005, 2012)).[11] Since the elliptical use of head nouns in predicate position is an overt recoverable element, the relevant issue thus concerns the N-ellipsis construction, a type of ellipsis construction.

Let us recall that to the extent that (P-)RAs as domain modifiers in predicate position are not established as QAs, they basically maintain their prenominal modification (see Levi (1978: §7.2)). Nagano (2016: 45) also explains that the motivation for the N-ellipsis analysis derives from the recoverability of the head nouns. For example, regarding the sentences in (47), nominals such as *electricity* and *type* can be recoverable following the RA *nuclear*.

(47) a. 75 percent of French electricity is nuclear electricity.

b. 75 percent of French electricity is of the nuclear type.

(cf. Nagano (2016: 45))

The simplest nominal can be the noun *electricity*, which is the true modifying target of the RA *nuclear*. The other nominal *type* can be naturally replaced by the classifying function of RAs (cf. (5)). We may well consider the concept of *partitivity* (Sleeman (1996: 34)) with respect to the recoverability of the head nouns. As argued by Alexiadou and Gengel (2012: 204), *partitivity* requires an element included within a particular set. They then argue that English

[11] In terms of the ellipsis phenomena, from a generative point of view, head nouns are phonetically null, or rather, more precisely, they are deleted in a very late step of derivation (cf. Nagano (2016, 2018), Shimada and Nagano (2018)). By contrast, the constructionist approach is based on the requisite semantic structure, which must be recoverable. This approach, therefore, does not assume a certain 'underlying' syntactic structure at the ellipsis site, either unpronounced or deleted (Goldberg and Perek (2019: 200)). See Culicover and Jackendoff (2005), Martin and McElree (2008), and Goldberg and Perek (2019) for more detailed discussion of theoretical issues based on syntactic accounts.

NP Ellipsis is licensed by means of *classifiers* such as *one*, as shown in (48a). Without *one*-insertion, on the other hand, "(inherent) plural seems a crucial factor", as illustrated in (48b), and "*one*-insertion in English is not always obligatory with adjectives" (Alexiadou and Gengel (2012: 191)).

(48) a. Talking about cars, I prefer a red *(one).

b. Talking about wine, I prefer Australian (*one).

(Alexiadou and Gengel (2012: 191))

Therefore, quantifiers, possessives, or demonstratives will function to license English NP Ellipsis. This indicates that "all NP Ellipsis environments contain a Classifier phrase" (Alexiadou and Gengel (2012: 197)).[12]

The N-ellipsis analysis is also morpho-syntactically motivated by the different behaviours of the two forms of Russian adjectives (Short Form (SF) and Long Form (LF)). First, SF adjectives cannot be used prenominally as in (49a), whereas LF ones can as in (49b).

(49) a. * SF: vkusn-o vino

good$_{SF.NOM.N}$ wine

b. LF: vkusn-oe vino

good$_{LF.NOM.N}$ wine

(Babby (2010: 58))

[12] Note that Alexiadou and Gengel (2012) focus particularly on 'NP' ellipsis, which differs from our present interest, 'N' ellipsis. However, they argue that 'an element specified for [+partitive] and [+focus] identifies an element that is included within a set' (Alexiadou and Gengel (2012: 204)). We assume that this element corresponds to *classifiers*; thus, along with their arguments, we refer to N-ellipsis as one type of NP ellipsis.

SF adjectives, therefore, represent only a qualitative meaning as in (50a), whereas LF adjectives maintain their classifying function (see (10a)) even in predicate position as in (50b).

(50) a. SF: Vino bylo vkusn-o.
wine$_{NOM.N}$ was good$_{SF.NOM.N}$
'Wine was good / the wine was good.'

b. LF: Vino bylo vkusn-oe.
wine$_{NOM.N}$ was good$_{LF.NOM.N}$
'This / the wine was a good wine / one.'

(Babby (2010: 75))

Although English does not have such a formal distinction in forms of adjectives as Russian does, RAs in predicate position are normally analysed to maintain their prenominal use. This can also be semantically motivated by the paraphrase of *monochromatic* in predicate position (cf. (34)). If the P-RA only has a QA reading (i.e. *drawings which are drab or unvarying*), it should not have an RA reading (i.e. *drawings which has one colour*), but the reading is still two ways ambiguous. In fact, not all RAs can be QAs. Thus, this can be one of the reasons why RAs are basically called 'attributive-use only adjectives' (cf. *former*, *fake*, *alleged*).

As an interim summary of the case of English, Levi's second problem (i.e. the predicate HAVE analysis fails to distinguish P-RAs from QAs) can now be solved by employing the N-ellipsis analysis; that is, the case in which (P-)RAs occur in predicate position is a type of N-ellipsis construction (cf. a type of gapping construction). English RAs, regardless of whether they are prefixed or not, maintain their prenominal use even in predicate position; thus, they are not *true* adjectival predicates.

We then turn to the case of Japanese. As pointed out by Saab (2019: 555), the form of

the genitive in Japanese is in fact 'homophonic' with the anaphoric *-no*. The genitive *-no* is represented in (51) and the anaphoric *-no* is in (52), respectively.

(51) N-ellipsis (genitive use of *-no*)

a. [Taroo no taido]-wa yoi ga, [Hanako no ~~taido~~]-wa yokunai
Taroo GEN attitude-TOP good though Hanako GEN attitude-TOP good-not
'Though Taro's attitude is good, Hanako's isn't.'

b. [Rooma no hakai]-wa [Kyooto no ~~hakai~~]-yorimo hisan datta
Rome GEN destruction-TOP Kyoto GEN destruction-than miserable was
'Rome's destruction was more miserable than Kyoto's.'

(cf. Saito et al. (2008: 253))

(52) Anaphoric *-no*

Akai *no*-o mittu kudasai
red one-ACC three give.me
'Please give me three red ones.'

(Takita (2007: 51))

The crucial difference between the uses of *-no* in (51) and (52) is that the anaphoric one cannot be used to replace eventive nouns (Saab (2019: 555)). Thus:

(53) *Taroo-no koogeki-wa [$_{DP}$ totemo tuyoi [$_{NP}$ no]] datta.
Taroo-GEN attack-TOP very strong one was
'Taro's attack was a very strong one.'

(Takita and Goto (2013: 216))

On this basis, Saab (2019) explains that the genitive *-no* construction differs from the anaphoric *-no* construction in that the former is related to the N-ellipsis construction but the latter is amenable to an Empty Noun analysis. One of the typical cases of empty noun construction in Japanese can be *ku*-ellipsis as shown in (54).

(54) a. Kono densetu-ga huru-i zidai-kara aru.
this legend-NOM old-I time-from be
'This legend is from old times.'

b. Kono densetu-ga huru-ku-kara aru.
this legend-NOM old-KU-from be
'This legend is from old times.'

(cf. Larson and Yamakido (2003))

The noun *zidai* 'time' in (54a) is elided and replaced by *ku* in (54b). The type of empty noun seems to be a lexical matter and there is no other reason of why Japanese (and English) has spatio-temporal empty nouns, though Spanish does not (Pullum (1975), Panagiotidis (2002), cf. Saab (2019: 527–528)). We will not delve further into the empty noun construction, but it is at least safe to say that our present topic (i.e. N+*-no* in predicate position) can be considered to be a type of N-ellipsis construction.

Along these lines, we conclude that both English and Japanese cases are a type of N-ellipsis construction. In the next section, as argued by Levi (1978), we will explore certain factors and investigate how they dictate the realization of contrast by N-ellipsis. The discussion will be based on Winkler's (2019) study on the information-structure of ellipsis and the prosodic pattern.

4.4.3. Contrast and Contrastive Focus

The notion of contrast is an important key to motivate the N-ellipsis phenomenon. Again, this is a type of 'ellipsis' phenomena. We then consider the following question in particular: if the N-ellipsis analysis is correct, what status do the stranded adjectives have as remnants and how do they relate to the contrast? To give a reasonable answer to the question, we will take up some relevant discussions about the relationship between ellipsis and contrast in the literature.

We have mentioned that the relevant elliptical construction is a type of ellipsis construction. Culicover and Jackendoff (2012: 326) claim that the gapping construction requires contrastive stress. As argued by Winkler (2019), based on the prosodic and information-structural literature on the ellipsis, there are mainly two types of ellipsis: *contrastive ellipsis* in (55a) and *givenness-marking ellipsis* in (55b). Note that the capital letters in both examples highlight the contrastive accent.

(55) a. MANNY plays the PIANO and ANNA ~~plays~~ the FLUTE. [Gapping]

b. Manny plays the piano but Anna DOESN'T ~~play the piano~~. [VP-ellipsis]

(Winkler (2019: 360))

The sentence in (55a) consists of a coordinate structure with parallel information structure. The verb *play* in the second conjunct is elided and the remnants *Anna* and *flute* are given a contrastive pitch accent; thus, it is an instance of *gapping*. As for (55b), the redundant VP *play the piano* in the second conjunct, already given in the antecedent clause, is elided; namely, this is an instance of VP-ellipsis. Winkler (2019) explains the relationship between deletability and ellipsis by combining the information-structural notion of *givenness* and *contrastive focus*:

(56) a. *Givenness-Marking Hypothesis* (GMH):

Given material is deaccented or deleted at Phonological Form.

b. *Contrastive Remnant Condition* (CRC):

Given information licenses a contrastive focus interpretation of the remnant(s).

The contrastive remnant(s) must be assigned a strong contrastive pitch accent.

(Winkler (2019: 363))

The GMH states that syntactic material is deaccented or deleted at PF, in which case the material is either given or redundant. This seems to correspond to the N-ellipsis analysis in the previous section. The CRC plays an introducing role for PF and demands that contrastive remnants bear a strong contrastive pitch accent (cf. *Gap-Hypothesis*; Molnár and Winkler (2010: 1398)). Accordingly, as emphasised by Winkler (2019: 363), "the CRC is functionally dependent on the GMH". Given the fact that the adjectives in question are left stranded in predicate position, we can assume that they can be regarded as 'remnants' and they are thus expected to receive a strong pitch accent. According to one of my informants, this expectation follows from the following prosodic patterns exemplified in (57) and (58).

(57) a. * That analysis is chromatic.

b. That analysis is CHROMATIC ~~analysis~~ (, {but not / rather than} achromatic).

(58) a. * Those exports are national.

b. Those exports are NATIONAL ~~exports~~ (, {but not / rather than} governmental).

Although the sentences in (57a) and (58a) were unacceptable according to Levi's observations, after we provided the informant with contrastive context, he read them as in (57b) and (58b). Each remnant (i.e. *chromatic* and *national*) receives a strong pitch accent, as expected from

Winkler (2019). This leads us to safely conclude that the N-ellipsis analysis can be associated with contrast. Furthermore, we investigated the case of P-RAs. As a result, interestingly, we confirm that P-RAs show much the same prosodic pattern as RAs; however, there is a slight difference from (57) and (58). The informant puts the highlighted accents on numerical prefixes only, as indicated in (59).

(59) Numerical prefixes

a. Those drawings are MONOchromatic.

b. Those agreements are BInational.

Importantly, such strong pitch accents on prefixes can also be confirmed in the case of other types of prefixes as in (60).

(60) Other types of prefixes

a. The consideration is EXTRAlogical.

b. This classic fiction is ANTI-colonial.

On the basis of this prosodic pattern, it can be argued that the prefixes *per se* are important to guarantee the GMH and to satisfy the CRC. As suggested by my analysis of P-RAs, there are certain prefixes which evoke a set of alternatives and yield a contrast (cf. Ishida (2020)). For example, the numerical prefix *mono-* of *monochromatic drawings* means *drawings* using *one* colour, implying other supposed alternative types of *drawings* (e.g. *dichromatic*, *trichromatic*, or *multichromatic*).

In summary, as suggested by Winkler's (2019) analysis of the relationship between the ellipsis and contrastive focus, we have clarified that the elliptical use of head nouns of RAs in

predicate position (i.e. N-ellipsis) follows the GMH. As a result, by applying the CRC, the stranded RAs receive a strong pitch accent which results in a contrastive focus. This can be paraphrased in the constructional approach as follows: when the domain modifiers (cf. remnants in predicate position) are 'foregrounded' by contrast, the head nouns are 'backgrounded', and such backgrounded information can be supplemented by our frame knowledge based on certain pragmatic or contextual information. In this way, we argue that N-ellipsis and contrast are closely related to each other in licensing the predicability of RAs as a whole. Moreover, this analysis can be further applied to the case of P-RAs. In this case, however, the prefixes *per se* play a crucial role in yielding a contrast by evoking a set of alternatives. Such an analysis successfully enables us to explain the reason why (P-)RAs can occur in predicate position based on the notion of contrast.

4.4.4. Factors Inducing Contrast

In this section, we will particularly pay our attention to the factors that are concerned with inducing the notion of contrast.

4.4.4.1. Contrast by Prefixes

I argue that the case of P-RAs can also be captured by *contrast* as observed in adverbial modifiers (e.g. *primarily*, *75%*); however, in this case, contrast is brought by prefixes *per se*. First, let us observe how numerical prefixes yield a contrast in (61).

(61) Numerical prefixes

a. Those drawings are {mono- / di- / tri- / multi-}chromatic.

b. Those agreements are {bi- / mono- / uni- / tri- / quadr- / multi-}national.

c. Those roots are {tri- / mono- / bi- / quadr-}consonantal.

The numerical prefixes can evoke a set of alternatives by suggesting a contrast with other numbers. For example, as (61a) shows, the prefix *mono-* implies the other types for *drawings*: *dichromatic*, *trichromatic*, or *multichromatic*. The same is true of (61b) and (61c). Second, recall that non-numerical prefixes can also occur in predicate position (see (36)), which is in fact not observed by Levi (1975, 1978). Thus:

(62) Other types of prefixes

a.	The consideration is extralogical.	(cf. {anti- / para- / pre-}logical)
b.	Those utilities are prosocial.	(cf. {anti- / contra- / non-}social)
c.	This classic fiction is anti-colonial.	(cf. colonial, {pre- / post-}colonial)
d.	The patient is nondiabetic.	(cf. diabetic, {pre- / anti-}diabetic)

For example, the P-RA *prosocial* in (62b) implies that there is an opposite form of *utilities* such as *antisocial*.

Therefore, in terms of contrast, prefixes themselves can yield a set of alternatives. This fact leads us to conclude that the contrast established by prefixes can induce N-ellipsis, which is illustrated by the following lexical and negative prefixes (cf. Nagano (2013), Plag (2003: 98–101)).

(63) Lexical prefixes:

a.	Numerical prefixes	(e.g. *mono-*, *uni-*, *bi-*, *tri-*, *quad-*, *poly-*, *multi-*)
b.	Spatio-temporal prefixes	(e.g. *pre-*, *post-*, *extra-*, *intra-*, *supra-*)
c.	Contrastive prefixes	(e.g. *pro-*, *anti-*, *contra-*, *counter-*)[13]

[13] These prefixes were not given names in previous studies. This study thus calls them 'contrastive prefixes' for the sake of convenience.

(64) Functional prefixes: Negative prefixes (e.g. *a*-, *non*-)

However, not all prefixes show this contrast. The following prefixes do not fit this category because they have a certain gradability or scalarity relative to the standard:

(65) a. Evaluative prefixes (e.g. *pseudo*-, *super*-, *hyper*-, *hypo*-)

b. Negative prefixes (e.g. *mal*-, *un*-, *de*-, *dis*-, *in*-)

c. Aspectual prefixes (e.g. *be*-, *en*-, *re*-)

(cf. Nagano (2013), Plag (2003: 98–101))

Since these prefixes attach to QAs, they are excluded from the present analysis.[14]

Accordingly, the predicability of P-RAs can be explained by the same principle as that of RAs. Levi's first problem (i.e. that there are P-RAs where the VP analysis (HAVE + numerals + base noun) cannot be applied) can now be solved through this criterion of contrast (see Naya and Ishida (2019) for the categorial status of *anti*- and *pro*- and Togano et al. (2019) for a discussion of other prefixes).

One may notice here that how such a prosodic pattern realises in the case of P-RAs as a type of QA. Again, the P-RA *monochromatic* has already established a qualitative meaning (i.e. 'drab' or 'unvarying' (*OED*, s.v. *monochromatic*)). In this case, its prosodic pattern can be different from *monochromatic* as a genuine P-RA. When used as a QA, the prefix *mono*- generally does not receive a strong pitch accent, as in (66a), in contrast to (66b), where it functions as a genuine P-RA.

[14] In terms of whether or not the prefixes can create a contrast environment and induce N-ellipsis, our analysis is based on the Lexical Integrity Principle (LIP) (e.g. *sub- and super-human* (Bauer (2005: 101)) vs. **Mary un- and re-tied her laces* (Sadler and Arnold (1994: 208)), see Nagano (2013: 112) for more details).

(66) a. Those drawings are monoCHROMATIC. ‘drawings which are drab’

b. Those drawings are MONOchromatic. ‘drawings which have one colour’

This kind of different prosodic pattern can be observed in other cases as shown in (67). According to OED, all P-RAs in (67) are actually used *figuratively*; that is, they are not at least used as genuine P-RAs.

(67) Numerical P-RAs as QAs

a. Although the Variation are almost monochromatic in their harmony, Ashton whisked them through a full range of colour and texture.

(*OED*, s.v. *monochromatic*)

b. The Divine Nature is revealed as bi-polar, or of double aspect.

(*OED*, s.v. *bipolar*)

c. Husband, wife and female lodger involved in a triangular relationship.

(*OED*, s.v. *triangular*)

d. What I have called the Situation was multiplex, multipolar, or multisiliquous.

(*OED*, s.v. *multisiliquous*)

For example, the P-RA *triangular* in (67c) here means not the shape of a triangle itself but indicates a situation or a human relationship involving three persons. Incidentally, other types of P-RAs can also be used or interpreted as QAs in some cases like those in (68).

(68) Other types of P-RAs as QAs

a. The notion is antediluvian, and long ago exploded: no one thinks of following such advice now.

(*OED*, s.v. *antediluvian*; *hyperbolical* 'Very antiquated; ridiculously old-fashioned or out-of-date')

b. I obediently sampled an old hock, an older port, and a most pre-historic brandy.
(*OED*, s.v. *prehistoric*; *hyperbolically* 'Designing or belonging to a period in the relatively recent past considered as an extremely long time ago; very old, primitive, out of date')

c. The postmeridian degrees of civilization (to preserve the author's metaphor) are less favourable to the popularity of the drama.
(*OED*, s.v. *postmeridian*; *figurative* 'Of or relating to the afternoon; occurring afternoon or midday')

d. During the Night...we saw a perfect Rainbow, which was extraordinary.
(*OED*, s.v. *extraordinary*; 'Of a kind not usually met with; exceptional; unusual; singular. Now with emotional sense, expressing astonishment, strong admiration or the contrary')

e. The temperature was practically sub-arctic.
(*OED*, s.v. *subarctic*; *figurative* 'very cold')

f. Their actions are supernatural, but not unnatural, or contranatural.
(*OED*, s.v. *contranatural*; 'Opposed to what is natural; contrary to nature')

For example, the P-RA *subarctic* in (68e) can have both literal and figurative meanings. In the literal reading, it designates the temperature in 'regions immediately to the south of the Arctic Circle or adjoining the Arctic region'. In the figurative reading, on the other hand, it possibly means 'very cold as in the subarctic region'. In this kind of reading, because of the adverb *practically*, the temperature is described in a similitudinal manner (i.e. *the temperature which is almost like the subarctic*). The process of how P-RAs are coerced into QAs remains

undecided (see Nagano (2018a, b)).[15]

4.4.4.2. Contrast by Classifiers in Japanese

Turning to the case of Japanese, we can now account for the different grammatical behaviour between the genitive form in (69a) and the expanded form in (69b).

(69) *komugi*(*-sei*)*-no pan* 'wheaten bread' (= (38))

a. * ano tihoo-no pan-wa komugi-no-da.
That region-GEN bread-TOP wheat-GEN-be.PRES
'Bread of that region is wheaten bread.'

b. ano tihoo-no pan-wa komugi-sei-no-da.
That region-GEN bread-TOP wheat-made-GEN-be.PRES
'Bread of that region is wheaten bread.'

Following Nagano (2016), we can assume that Japanese classifiers play an important role to

[15] One possible explanation for the reason why (P)-RAs can be QAs may be associated with metaphoric extension. Recall that, though it is relatively determined, QAs are conceptually 'dependent' elements like verbs, whereas (P-)RAs are conceptually 'autonomous' elements like nouns (see the discussion in Chapter 3). Note also that metaphoric language is essentially construed by using the following format and the conceptual relation: *target domain*$_{[\text{autonomous}]}$ *is source domain*$_{[\text{dependent}]}$ (cf. Lakoff and Johnson (1980), Sullivan (2013)). This format plays a crucial role for (P-)RAs to be converted from classificatory modifiers into predicating modifiers. Thus, QAs are generally construed as *target-domain elements*, while (P-)RAs are as *source-domain elements* (i.e. QA$_{[\text{target domain}]}$ is (P-)RA$_{[\text{source domain}]}$). For instance, the P-RA *monochromatic* can be used qualitatively (i.e. 'drab, unvarying'), through a metaphoric extension. Based on certain conceptual metaphors such as ATTRIBUTES ARE ENTITIES, PROPERTIES ARE CONTENTS, or PROPERTIES ARE PHYSICAL PROPERTIES (cf. the Master Metaphor List; Lakoff et al. (1991: 7, 12, 13)), the following metaphoric interpretation can be obtained: *monochromatic*$_{[\text{QA}]}$ 'drab' *is monochromatic*$_{[\text{P-RA}]}$ 'having only one colour'. Thus, as this kind of conceptual relation and metaphoric extension is conventionalised, (P-)RAs can become QAs. If we regard such an adjectival alternation as a type of conversion (cf. *secondary conversion*; see also footnote 10 in Chapter 2), metaphoric extension can be one of the factors to motivate this. Incidentally, the conversion between other categories (e.g. V to N) is concerned with *metonymy* (see Bauer (2018), Brdar and Brdar-Szabó (2013), Brdar (2017)). In this sense, *the* conversion of (P-)RAs into QAs varies from this. This will be further discussed in Chapter 5.

implement a contrast. That is, as observed in the case of prefixes, since classifiers are lexical bound morphemes, they easily evoke a certain set of alternatives (e.g. {*komugi* 'wheat' / *raimugi* 'rye' / *oomugi* 'barley' / *karasumugi* 'wild oats'}-*sei*) as in (70).[16]

(70) a. komugi-sei 'made of wheat': X-*sei* 'made of X'

b. surabu-kei 'the type of Slav': X-*kei* 'in the line or family of X'

c. yooroppa-gata 'the type of Europe': X-*gata* 'the type of X'

Further, since the simple genitive forms of denominal modifiers in Japanese cannot identify a specific meaning like classifiers, they should co-occur with other grammatical elements in order to evoke a certain contrastive interpretation. Again, this can be confirmed by the following examples.

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[16] In fact, Japanese also has English-like prefixes such as *hu-* 'un-' (不), *mu-* 'un-' (無), *sin-* 'new' (新), *hi-* 'un-' (非), *zen-* 'whole' (全), *sai-* 're-' (再), *han-* 'anti-' (反), *mi-* 'not yet' (未), *mai-* 'every' (毎), and so on (Miyaoka and Tamaoka (2005)). In terms of predicability, some N+-*no* forms attached by these prefixes behave in the same way as the classifiers discussed in this chapter. Compare the (a)-sentences with the (b)-sentences in (i) and (ii).

(i) *naikaku-no taisei* 'the Cabinet's system'

a. ? atarasi-ku hossoku-sita taisei-wa naikaku-no-da.
new-KU set up system-TOP cabinet-GEN-be.PRES
'A newly set up political system is by the Cabinet.'

b. atarasi-ku hossoku-sita taisei-wa *shin*-naikaku-no-da.
new-KU set up system-TOP new-cabinet-GEN-be.PRES
'A newly set up political system is by the new Cabinet.'

(ii) *syuu-no syuukan* 'week custom'

a. ? sono syuukan-wa syuu-no-da.
DET custom-TOP week-GEN-be.PRES
'The custom is week custom.'

b. sono syuukan-wa *mai*-syuu-no-da.
DET custom-TOP every-week-GEN-be.PRES
'The custom is weekly custom.'

The difference between the (a)- and (b)-examples may be subtle, but we can recognise that the (b)-sentences are at least more acceptable than the (a)-sentences.

(71) Co-occurrence of the negative *no-dewanaku* phrase (= (39))

a. ano tihoo-no pan-wa raimugi-no-dewanaku komugi-no-da.
That region-GEN bread-TOP rye-GEN-not.but wheat-GEN-be.PRES
'Bread of that region is not rye bread, but wheaten bread.'

b. ano tihoo-no pan-wa raimugi-no-dewanaku komugi-sei-no-da.
That region-GEN bread-TOP rye-GEN-not.but wheat-made-GEN-be.PRES
'Bread of that region is not rye bread, but wheaten bread.'

(72) Co-occurrence of quantificational modifiers (= (40))

a. ano tihoo-no pan-wa {daibubun / 75%} komugi-no-da.
That region-GEN bread-TOP {mostly / 75%} wheat-GEN-be.PRES
'Bread of that region {mostly / 75%} wheaten.'

b. ano tihoo-no pan-wa {daibubun / 75%} komugi-sei-no-da.
That region-GEN bread-TOP {mostly / 75%} wheat-made-GEN-be.PRES
'Bread of that region {mostly / 75%} wheaten.'

In both cases of the negative *no-dewanaku* phrase in (71) and the quantificational modifiers in (72), the genitive form in each (a)-example can occur in predicate position in the same way as the expanded modifier in each (b)-example.

4.4.4.3. Contrast by Other Lexical Elements

These lines of argument allow us to propose that if RAs are affixed by lexical elements (e.g. prefixes) which yield contrast and induce N-ellipsis, they can also occur in predicate position. We argue in Odagiri et al. (2019) that the 'combining forms' of neo-classical compounds evoke a contrast. For example, the neo-classical compound *insecticide* in (73a)

consists of the noun *insect* and the combining form *-cide*:

(73) a. insecticide ‘killer of an insect’

b. hydrophobia ‘fear of water’

(cf. Scalise and Bisetto (2009: 47))

This combining form means ‘killer of X’. Similarly, *-phobia* in (73b) means ‘fear of X’ (cf. Nagano (2016: 61)). These combining forms can serve as stems to derive RAs. Thus:

(74) a. insecticidal: X-*cidal* ‘X-killing’

b. hydrophobic: X-*phobic* ‘X-fearing’

The RA form *-cidal* has a meaning including an undecided variable ‘X’. When X is determined, the other variables are contrastively evoked (e.g. *fungicidal* ‘fungus-killing’, *pesticidal* ‘insect-killing’).

(75) RAs formed from Neo-classical compounds (cf. Lasserre and Montermini (2015))

a. mesophilic and thermophilic conditions, thermophilous fungi

b. insecticidal activity, pesticidal genes

(Nagano (2016: 62))

c. carcinogenic substance

d. herbivorous birds

(Odagiri et al. (2019))

Combining forms may thus evoke some set of alternatives as certain prefixes do. The same is

true of *-phobic* (e.g. *xenophobic* 'foreigner-fearing', *acrophobic* 'high place-fearing'). Let us observe how this type of RA behaves in predicate position:

(76) a. This compound is insecticidal.

b. This compound is insecticidal, not rodenticidal.

(77) a. This organism is hydrophobic.

b. This organism is hydrophobic, not aerophobic.

(78) a. These bacteria are thermophilic.

b. These bacteria are thermophilic, not cryophilic.

(79) a. This substance is carcinogenic.

b. This substance is carcinogenic, not ulcerogenic.

(80) a. These birds are herbivorous.

b. These birds are herbivorous, not carnivorous.

(Odagiri et al. (2019))

The RAs *insecticidal* and *hydrophobic* in (76)–(77) appear in predicate position. In Odagiri et al. (2019), we further argue that there is no difference between the (a)-examples and (b)-examples in terms of acceptability, confirming that combining form RAs yield contrast by themselves and induce N-ellipsis, regardless of whether they are contrasted explicitly or not.

In this way, the case of combining form RAs can be considered as supporting evidence for our analysis. Classifiers in Japanese and prefixes and combining forms in English, in a sense, may function as *classifiers* to evoke a certain contrast (see Nagano (2016) and Shimada and Nagano (2018) for the case of Japanese).[17] We can now capture the very mechanism for

[17] Note that neo-classical compounds have different types such as synthetic-type as in (i) and root-type as in (ii).

the present topic in both English and Japanese systematically.

4.4.5. Summary

We have analysed the mechanism of English and Japanese denominal modifiers occurring in predicate position. We have specifically investigated the relationship between the elliptical use of head nouns and contrastive interpretation. As a whole, such a phenomenon can be captured by the notion of contrast.

In English, different factors are involved in simple RAs and P-RAs occurring in predicate position. The former needs some contextual factors (e.g. certain implicit or explicit contrast) which induce a contrast, while the latter do not because of the contrastive effect brought by the prefixes themselves. This analysis can further be strengthened by the same behaviour of the adjectival form of neo-classical compounds. In this case, too, combining forms evoke a certain set of alternatives.

Interestingly, the same mechanism can be applied to the case of Japanese. The simple genitive form needs some certain contextual factors to introduce a contrastive effect, whereas the expanded form does not need this, since classifiers function to evoke some sets of alternatives by themselves. All the consequences and factors involved can be summarised in Table 4.1.

(i) Synthetic compounds
  a. gastrostomy: gastro ‘stomach’ + stomy ‘opening’)
  b. neurogenic: neuro ‘brain’ + gen-*ic* ‘producing’

(ii) Root compound
  a. gastrodynia: gastro ‘stomach’ + dynia ‘pain’
  b. keratosis: kerato ‘cornea’ + osis ‘disease’

(Bauer et al. (2013: 486–487), cf. Hayashi (2019: 77))

We assume that the root-type compound shows the same behaviour as simple RAs such as *viral*, *wheaten*, and *chromatic*; that is, this type of RA also needs a certain contextual factor to be in predicate position.

Table 4.1. The formation of domain modifiers in English and Japanese and contrast

	English		Japanese	
	N + Suffix *chromatic*	Prefix + RA *monochromatic* NC + Suffix *insecticidal*	N + *-no* *komugi-no*	N + CL + *-no* *komugi-sei-no*
Contextual Contrast	✔	—	✔	—
Lexical Contrast	—	✔	—	✔

Although we have not illustrated the present topic within a particular cognitive-oriented framework such as *reference-point abilities* (cf. Langacker (1993)), the above analysis can be captured by our construction-based framework. When the domain modifiers occur in predicate position, due to the function of *contrast* as an extra-constructional factor, they are 'foregrounded', while the head nouns are 'backgrounded'. Such foregrounded constituents are grammatically marked (e.g. a contrastive pitch accent) by either lexical (e.g. certain prefixes and combining forms in English and classifiers in Japanese) or contextual elements (e.g. adverbials). When the conceptual asymmetry between the domain modifiers and the head nouns is satisfied, the head nouns can be 'covert' because their background information can be supplemented by the extra-constructional factor, contrast.

4.5. Summary of Chapter 4

We are now in a position to answer all the following questions, which are repeated from Section 4.1.

(81) a. Why can some denominal modifiers in English and Japanese appear in predicate position? How can this be achieved?

b. Why can English prefixed relational adjectives (P-RAs), unlike non-prefixed

ones, naturally occur in predicate position (e.g. *those drawing are monochromatic* vs. **those drawings are chromatic*)? What kind of factors are involved in this grammatical difference between the two types of RAs?

c. Are denominal modifiers in predicate position predicating modifiers? If so, how can this be achieved? If not, what are they?

First, the predicability of P-RAs can be analysed in the same way as that of RAs (i.e. N-ellipsis and Contrast). Adverbials (e.g. *primarily*, *75%*) that modify RAs in predicate position and lexical elements (e.g. prefixes, combining forms) that are attached to RAs are equivalent in the sense that both can evoke a set of alternatives and induce an N-ellipsis phenomenon. Second, lexical prefixes, such as numerical, spatio-temporal, and contrastive, and some negative prefixes (i.e. *a-* and *non-*) can serve to evoke contrast by themselves. The N-ellipsis analysis and the notion of contrast can be applied not only to numerical prefixes but also to non-numerical ones.

From the point of view of *contrast*, we no longer need to take Levi's (1975) HAVE predicate deletion analysis into account. Conversely, we have shown that Levi's (1978) remark on the elliptical use of head nouns gives a clue to deal with the predicability of P-RA's as well as simple RAs. Furthermore, based on the notion of contrast, we have supported our own analysis by investigating the case of other lexical elements that evoke a contrast (i.e. combining forms of neo-classical compounds) and by examining the case of Japanese (i.e. genitive forms and expanded forms).

Both English and Japanese denominal adjectives (DAs) in predicate position should be considered to remain their original status as non-predicating modifiers. This conclusion thus follows our generalisation of noun modification by adjectives based on a construction grammar point of view. That is, DAs in noun modification are construed in such a way that they

intrinsically preserve their constructional properties (i.e. classifying function) as modifiers. At an interpretive level, the constructional properties of DAs are, in fact, maintained by the notion of contrast, which is an extra-constructional factor.

On the basis of the consequences of Chapters 3 and 4, the following question may naturally arise: how are constructional properties of adjectives in noun modification stored in our lexicon? Put differently, in terms of noun modification, we are concerned with what the canonical properties of adjectives as a category are and how derived adjectives and non-derived ones differ from each other. For example, RAs, a type of derived adjectives in English, behave like nouns but at the same time, they are indeed modifiers like adjectives. We will next examine this point in detail in Chapter 5.

Chapter 5

Domain Modifiers in the Lexicon:

The Constructional Properties of Adjectives in English

5.1. Introduction

In Chapters 3 and 4, we have analysed certain apparently semantic and grammatical peculiarities of noun modification by adjectives in terms of Construction Grammar. Through the analysis, it has been argued that such peculiarities can be explained by the general principle that we have proposed, which is repeated in (1).

(1) The General Principle of Noun Modification by Adjectives

Adjectives in noun modification must be construed in such a way that they intrinsically preserve their constructional properties as modifiers.

a. Even in some semantically or grammatically peculiar cases, the principle is satisfied at an interpretive level.

b. In such cases, the constructional properties of modifiers are merely covert and extra-constructional factors are heavily involved.

On this basis, in Chapter 3, we have taken up the semantically peculiar relation between predicating adjectives and the head nouns in attributive use. We have argued that even though the semantic relationship between them appears strange in some cases, the constructional property of the adjectives (i.e. predicating a property of the referent) is satisfied at an interpretive level by the extra-constructional factor *metonymy*. In Chapter 4, we have investigated the grammatically peculiar behaviour of non-predicating denominal adjectives (i.e. relational adjectives (RAs)). In this case, too, we have revealed that the constructional

property of the adjectives (i.e. subcategorising the type of the head noun) is also interpretationally retained by the extra-constructional factor *contrast*. These two properties of adjectives as modifiers (i.e. predicating and domain) follow the two types of A-N constructions as shown in (2), on which our analysis has so far been based (cf. Sullivan (2007, 2013)).

(2) Two Types of A-N Construction

a. Predicating modifier construction:

The adjective predicates a property of the referent designated by the noun.

b. Domain modifier construction:

The adjective subcategorises the reference (i.e., semantic domain) indicated by the noun.

The two types of modifier constructions in (2) can capture not only the relationship between the modifier and the head but also the properties of adjectives as modifiers. Such a consequence leads us to assume that adjectives themselves potentially have the two constructional properties in essence and they are determined by the relationship with the head nouns. Then, we should next ask how these constructions and their constructional properties are related to each other.

Recall here that the construction grammar approach deals with any size of grammatical elements as constructions and regards 'the word' as the minimal construction (Masini and Audring (2019: 365)). That is, adjectives themselves should be regarded as constructions as well and they must have their own unique constructional properties. Sullivan (2013) does not discuss this in detail because she focuses only on the 'metaphoric' meaning of adjectives as modifiers in relation to the head nouns. We will mainly consider this in this chapter, seeking answers to the following questions.

(3) a. How are the two constructional properties of adjectives (predicating (cf. property-denoting) and subcategorising (cf. type-identifying)) related to each other?

b. How are predicating modifiers and domain modifiers stored in the lexicon? How do we use them properly?

c. How is the categorial status of adjectives captured by the theory of Construction Grammar?

Answering these questions, we will integrate what we have clarified so far into the discussion of categorial and constructional properties of adjectives as a lexical category. Specifically, we will focus particularly upon the morphological status of denominal adjectives (DAs).

This chapter is organised as follows. Section 5.2 reanalyses what we have argued in Chapters 3 and 4. We will specifically attempt to clarify in what ways domain modifiers differ from predicating modifiers. Section 5.3 reviews Nikolaeva and Spencer's (2020) discussion of DAs. We will consider how derived words such as DAs are defined in accordance with their own 'morpholexical' (Spencer (2005); i.e. morphological and lexical) properties. The section also introduces some important notions and terms with respect to 'categorially mixed' words. On the basis of Nikolaeva and Spencer's (2020) study on DAs, Section 5.4 recaptures domain modifiers and divides them into two types within the constructional framework. The analysis will be developed by focussing on their adjectival suffixes. By summarising them, Section 5.5 attempts to draw a whole picture of noun modification by adjectives and to illustrate how the relevant adjectives establish the constructional network in *construct-i-con* (i.e. the lexical network; mental lexicon). Section 5.6 then provides some theoretical implications. Specifically, we will discuss the internal structure of constructions, and based on the theory, how our constructional analysis can be compatible with another linguistic theory, i.e., word-

based morphology. Section 5.7 summarises the contents of this chapter.

5.2. The Role of Construction in Noun Modification by Adjectives

First of all, notice that the general principle of noun modification by adjectives in (1) is based on the Construction Grammar framework. The theory, as introduced in Chapter 2, regards any size of grammatical elements as 'constructions'. Constructions in Construction Grammar are conventionalised pairings of 'form' and 'meaning'. In this section, we will reconsider what we have clarified in the previous chapters (i.e. modification in meaning) and point out that there is another aspect of modification (i.e. modification in form), which has not yet been taken into account. This section is important to reveal what issue remains in the present topic (i.e. noun modification by adjectives) and to understand the role of construction.

5.2.1. Modification in Meaning and Modification in Form

The two types of noun modification construction (see (2)) that we have redefined based on Sullivan's model can be considered to be subtypes of the *modifier-head* construction, which is typically instantiated by the combination between an adjective and a noun. In this construction, the first dependent element modifies the second and the second element determines the type of phrase that the whole construct represents, generally conveying the meaning of 'an X that has the quality of being Y' (Hilpart (2019: 52)). The paraphrase only works for a subset of all examples that instantiate the modifier-head construction. However, there are some cases where the paraphrase cannot be applied, as represented in (4).

(4) a. John smoked a fat cigar.

b. I never see any of my old friends anymore.

c. Bob's restaurant was closed down for hygienic reasons.

d. The judge found the alleged murderer innocent.

(Hilpert (2019: 52))

While *a fat cigar* in (4a) means 'a cigar that is fat', *old friends* in (4b) is not 'friends that are old', but 'friends for long time'. Similarly, *hygienic reasons* in (4c) means 'reasons that are hygienic', whereas *alleged murderer* in (4d) never means 'a murderer who is alleged'. Therefore, even though the formal relationship between the modifiers and the heads is the same across these examples, the interpretations vary individually. Therefore, we can at least say that the modifier-head construction is a 'purely formal' construction (cf. a grammatical construction) (Hilpert (2019: 52)).

Such an interpretive variation in the modifier-head construction can then be divided into two canonical types, which are summarised as in Table 5.1.

Table 5.1. Canonical form-meaning pairings in noun modification by adjectives

	Predicating Modifiers	Domain Modifiers
FORM	a. *bright light* b. *The light is bright*	a. *chromatic drawings* b. * *Those drawings are chromatic*
MEANING	Predicating (cf. property-denoting)	Subcategorising (cf. type-identifying)

Predicating modifiers can appear in both attributive and predicative use as canonical forms and their canonical meaning is to predicate a property of the referent indicated by the head noun. Domain modifiers, on the other hand, take only the attributive form, and they do not have a predicative counterpart in comparison to predicating modifiers. They canonically specify the semantic domain of the head nouns (cf. subcategorising/identifying a type of the head). The respective form and meaning property of both modifiers are combined as 'constructions' and

they are divided into two types, as we have defined in (2). These two constructions thus stand for subtypes of the modifier-head construction and they are established by pairing the construction with each different canonical meaning.

The deviation from the canonicity in noun modification by adjectives is exactly what we have analysed in Chapters 3 and 4. We have found a form-meaning gap in the two types of constructions. However, we have clarified that such a gap turned out to be only apparent and argued that it is resolved by an extra-constructional factor. The findings imply that the form and meaning in modification are 'independent' of each other. The consequences in each chapter are summarised below.

In Chapter 3, we have observed that although the adjectives investigated there are all of the predicating-type and the formal combination of the adjectives and the nouns follows the modifier-head construction, their meanings are not maintained at first glance. We have argued that the adjectives turn into domain adjectives (i.e. subcategorising function) at an interpretive level. Put differently, the predicating adjectives themselves do not intrinsically change their forms or properties (i.e. the predicating function is actually retained by the effect of *metonymy*). We can regard examples such as *bright taste* as instantiations of semantically peculiar modification, in which the modification in form is invariant but that in meaning differs from the original property (i.e. predicating; property-denoting). Interestingly, a similar analysis can be applied to what we have analysed in Chapter 4 as well.

In Chapter 4, we have clarified that the domain modifier construction is still preserved in predicate position. Even though the apparent form of the modifier-head construction is not maintained (i.e. non-predicating adjectives in predicate position), we supplement the concept of head nouns at an interpretive level by either contextual information or lexical items such as prefixes and combining forms (i.e. the elliptical use of head noun). The adjectives themselves in this case, too, do not turn into true adjectival predicates or property-denoting adjectives (i.e.

the subcategorising function is retained by the extra-constructional factor, *contrast*). We regard examples such as *those drawings are monochromatic* as instantiations of grammatically peculiar modification, in which the modification in form differs from the canonical (i.e. attributive-only use) but that in meaning is invariant even in predicative use (i.e. subcategorising; type-identifying).

In comparison to the canonical version of form-meaning pairings of noun modification by adjectives in Table 5.1, such peculiar cases can roughly be summarised as in Table 5.2.

Table 5.2. Form-meaning gap in noun modification by adjectives

	Predicating Modifiers	Domain Modifiers
FORM	a. *bright taste* b. ?? *The taste is bright*	a. *monochromatic drawings* b. *Those drawings are monochromatic*
MEANING	Subcategorising (cf. type-identifying)	Subcategorising (cf. type-identifying)

Therefore, in both semantically and grammatically peculiar cases, a form-meaning gap occurs in noun modification by adjectives. The two types of construction in (2) have provided such peculiar cases with the reasonable semantic explanation and detailed interpretive mechanism. Our analysis has been pertinent to both form and meaning sides of noun modification by adjectives: *modification in form* and *modification in meaning*. We then recognise that not only constructions themselves but also their internal structures (i.e. FORM and MEANING) respectively create their own constructional network. That is, the semantic and grammatical peculiarities in both Chapters 3 and 4 have been best analysed in the theory of Construction Grammar, because constructions play a crucial role to combine both internal structures. If there is a certain gap between form and meaning, a genuine syntactic or semantic analysis cannot handle this in some cases, but Construction Grammar can. Therefore, taking such semantically and

grammatically peculiar phenomena into account, we contend that our linguistic knowledge consists of form-meaning pairing constructions.

5.2.2. Domain Modifiers and Their Forms

We then turn to another issue in noun modification by adjectives. It is concerned with the genuine 'formal property' of modifiers *per se* in noun modification. Sullivan (2013: §5.4) explains that the conceptual relation of N-N compounds is quite similar to that of the RA-N construction (i.e. the domain modifier construction). That is, the first element is conceptually autonomous, whereas the second element is conceptually dependent (see Chapters 2 and 3). The typical examples of both non-metaphoric and metaphoric version are represented in (5)–(6) and (7)–(8), respectively (see also Beard (1995: 188)).

(5) Non-metaphoric RA-N

a. academic job

b. rural policeman

c. industrial output

(6) Non-metaphoric N-N

a. academy job

b. country policeman

c. industry output

(7) Metaphoric RA-N

a. mental exercise

b. spiritual wealth

c. economic body

(8) Metaphoric N-N

a. mind exercise

b. spirit wealth

c. economy body

In both non-metaphoric and metaphoric examples, regardless of whether the forms of the modifiers are RA or N, their intended meanings (in which the modifier subcategorises the type of the head noun) stay constant. Therefore, the formal difference between RA and N does not

actually contribute to the semantics of RA-N and N-N constructions. Moreover, as illustrated in Chapter 4, a number of properties of RAs are the same as those of nouns (e.g. unpredicability, adjacency to nouns, lack of gradability, and so on). These facts have long been pointed out by many scholars such as Ljung (1970), Beard (1995), Levi (1973, 1975, 1978), Bisetto (2010), Shimamura (2014), Nagano (2016), to name but a few.

Then, the following questions arise. How is the formal difference between RA and N associated with the domain modifier construction? In other words, although there is no apparent semantic distinction between the RA-N construction and the N-N construction, how do we distinguish the two constructional types to express the same concept? How are the two forms of domain modifiers (i.e. RA and N) related to each other?

From a semantico-pragmatic point of view, some scholars attempt to give an explanation for this. For example, Levi (1978) explains that the morphological adjectivalisation (i.e. RA < N) is an alternative operation. However, in terms of acceptability and preferability, she points out that some N-N constructions are highly favoured rather than RA-N constructions, which is represented in (9) (see also Yasui et al. (1976: 96)).[1]

(9) N-N preferred over RA-N

a.	picture book	vs.	pictorial book
b.	eye infection	vs.	ocular infection
c.	father figure	vs.	paternal figure

[1] As pointed out by Yasui et al. (1976: 96), some N-N expressions as in (9) play an important role in denoting meanings, which RA-N expressions cannot (e.g. *music teacher* vs. *musical teacher*, *ocean voyage* vs. *oceanic voyage*, *mountain tribes* vs. *mountainous tribes*). In other words, the RAs appearing in this type of expression denote not only their *relational* meanings, but also certain *qualitative* meanings (e.g. *musical teacher* 'a teacher who is musical', *oceanic voyage* 'voyage which is broad', *mountainous tribes* 'tribes that are large'). Therefore, the semantic relationship between the elements in the N-N combination is stronger than that in the RA-N combination in that the former does not allow such two-way ambiguous readings (i.e. relational and qualitative), which are possibly expressed by the latter. The question of what kind or class of RAs can obtain a certain qualitative reading is another issue to be studied.

d.	race riot	vs.	racial riot
e.	mind reader	vs.	mental reader
f.	construction materials	vs.	constructional materials

(Levi (1978: 224))

In (9), each N-N construction is more preferred than the corresponding RA-N construction in common speech and the alternative form is intuitively "jarring" at best or "impossible" at worst (Levi (1978: 224)). By contrast, the following RA-N constructions are in fact highly favoured over the corresponding N-N constructions.

(10) RA-N preferred over N-N

a.	logical fallacy	vs.	logic fallacy
b.	digestive system	vs.	digestion system
c.	mental disturbance	vs.	mind disturbance
d.	racial disorder	vs.	race disorder
e.	instructional materials	vs.	instruction materials
f.	maternal instinct	vs.	mother instinct

(Levi (1978: 224))

Levi (1978) explains these complex cases from a stylistic point of view, but her account still seems unclear. She states that "the choices made within such pairs are as unpredictable—and as unamenable to linguistic analysis—as the length of skirts in next year's fashions or the next slang adjective to be adopted or coined by adolescents as a term of general approbation" (Levi (1978: 225)). On the basis of the previous studies, however, it seems still difficult from a semantico-pragmatic point of view to give a reasonable account of the formal difference between

the RA-N and N-N combination. Are there any possible approaches that can explain the formal difference between the two types?

Furthermore, we should recall from the preceding chapters that whether the modifier is of the predicating or domain type is determined by its conceptual relation with the head noun. The function of domain modifiers generally *subcategorise* or *identify* the semantic domain indicated by the head nouns (i.e. domain-identifying; identifying a type of reference of the head noun). Regardless of whether the modifiers are RAs or nouns, domain modifiers always preserve the domain-identifying interpretation in relation to the head nouns. Let us examine this in detail.

First of all, compare the expression *high tidal currents* in (11a) to *high tide currents* in (11b). The apparent difference between them is whether the pre-head modifier is an RA (i.e. *tidal*) or noun (i.e., *tide*).

(11) a. high tidal currents [A-RA-N]

b. high tide currents [A-N-N]

(cf. Spencer and Nikolaeva (2017: 84))

Both expressions in (11) mean 'high currents of the tide'. In this case, the different form of domain modifiers (*tidal* or *tide*) does not affect the interpretation. Therefore, following Levi (1978) and Sullivan (2013), whether the domain modifiers are RAs or nouns does not seem to contribute to the interpretive distinction between (11a) and (11b).

It would be hasty to have such a conclusion, however. In fact, the expression in (11a) cannot stand for 'the currents of high tide', whereas that of (11b) can. We illustrate the possible interpretations for both expressions, as in (12).

(12) a. high tidal currents [A-RA-N]

(i) 'high currents of the tide'

(ii) *'the currents of high tide'

b. high tide currents [A-N-N]

(i) 'high currents of the tide'

(ii) 'the currents of high tide'

Let us take another example in (13), where a similar interpretive difference is confirmed. Specifically, although both *a Brazilian wooden bow* in (13a) and *a Brazilian wood bow* in (13b) have the interpretation 'a wood bow made in Brazil' as in each (i), only the latter (13b) can express 'a bow made of Brazilian wood' as in (13bii), in comparison to (13aii).

(13) a. a Brazilian wooden bow [A-RA-N]

(i) 'a wood bow made in Brazil'

(ii) *'a bow made of Brazilian wood'

b. a Brazilian wood bow [A-N-N]

(i) 'a wood bow made in Brazil'

(ii) 'a bow made of Brazilian wood'

(cf. Spencer (2018: 267))

We then draw our attention to a different type of DA in (14) (i.e. *-ed* adjectives).[2] *-ed* adjectives are used to yield the standard possessive interpretation (cf. sometimes called *ornative*),

[2] Spencer (2018) and Nikolaeva and Spencer (2020) express these adjectives as "*ed*-adjectives", since they regard the word as the smallest lexical entry (i.e. lexeme) but not the concatenation of morphemes. Our discussion proceeds based on their arguments but we will express these adjectives as "*-ed* adjectives" in a general manner.

inalienable possession in particular (cf. see Ljung (1976) for detailed discussion).[3] Concerning the expression *a blue-eyed boy* in (14a), the speaker describes a boy who has blue eyes (i.e. eyes are inalienable substances). This can also be expressed with the use of the noun form *eye* as in (14b).

(14) a. a blue-eyed boy [A-DA-N] 'a boy who has blue eyes'

b. a blue-eye boy [A-N-N] 'a boy who has blue eyes'

(cf. Spencer (2018: 265–266), Nikolaeva and Spencer (2020: 35))

The *-ed* adjective in this case can also be considered to subcategorise a type of *boy*; namely, the speaker identifies the boy with *blue-eyes* and not with *green-eyes*, *red-hair*, or *long-legs*. In this respect, *-ed* adjectives also indicate the domain-identifying interpretation.

To sum up, it is safe to say that the domain-identifying interpretation of domain modifiers is always retained in relation to the head nouns, regardless of the forms of DA.[4] However, as discussed in (12) and (13), there are interpretive differences in whether the pre-head modifiers are RAs or nouns. On the other hand, there is no such a difference in the case of *-ed* adjectives in (14). What kind of factor is involved in yielding such interpretive differences amongst (12)–(14)? The question naturally makes us focus not only on the *posterior* modificational relation of domain modifiers (i.e., A-[DA-N]) but also on that of the *anterior* relation (i.e. [A-DA]-N). This is exactly what we should tackle in this chapter. We thus need to turn our focus to a more 'formal' property rather than a semantic property of domain modifiers. Specifically, it is necessary to investigate the morphological status of the relevant DAs (i.e. RAs and *-ed*

[3] It is indeed impossible to express examples that are alienably possessed such as **fresh milked glass* 'glass with fresh milk in it', **short husbanded woman* 'woman whose husband is short', **many typo-ed article* 'an article containing a lot of errors' (Spencer (2018: 266)).

[4] Notice that DAs such as *beautiful* (< *beauty*), *woody* (< *wood*), *picturesque* (< *picture*), and *nervous* (< *nerve*) are not included in the discussion, since such DAs are predicating modifiers.

adjectives) and their constructional properties in comparison to nouns.

5.2.3. Summary

In this section, we have clarified the fact that DAs such as RAs and *-ed* adjectives in noun modification always retain their domain-identifying interpretation. The domain modifier construction is attributed to the relation between domain modifiers and the head nouns. However, when we turn to the modificational relation of domain modifiers (i.e. DAs) and their anterior adjectives, the interpretation varies along with the formal difference of pre-head modifiers (i.e. N, RA, *-ed* adjective). With respect to RAs and nouns, they share the common meaning structure, but not the form structure, since their categories are apparently different (i.e. one is adjectival form but the other is nominal). Levi (1978) attempts to give a possible explanation for this based on the different usage between RA-N and N-N combination, but it seems still obscure to capture the morphological alternation between RA and noun. Thus, it is our next task to tackle the morphological and lexical nature of domain modifiers, DAs (mainly RAs) in particular.

5.3. Two Types of Denominal Adjectives

Spencer and Nikolaeva's recent series of studies on nominal modification reveal the fact that Denominal Adjectives (DAs) divide into two groups according to whether they concern either *derivation* or *inflection* (Spencer and Nikolaeva (2017), Nikolaeva and Spencer (2020)).[5]

[5] Nikolaeva and Spencer's (2020) analysis is based on a lexicalist approach. They develop their discussions within the so-called 'lexeme-based morphology' theory. The best example to illustrate this can be in the way of capturing 'transpositions' (i.e. the morphological operation of category-changing). Spencer (2013: 3) proposes the term *lexical relatedness*, which can encompass "the prototypical instances of inflection and derivation as just two of many ways in which two words can be related". On this basis, Spencer and Nikolaeva (2017) and Nikolaeva and Spencer (2020) divide transpositions into two types (i.e. *transpositional lexemes* and *true transpositions*). A transpositional lexeme is "derived from a noun without any additional semantic predicate, but the resulting adjective respects Lexical Integrity in the sense that the base noun is entirely opaque to syntactic and semantic processes that target nouns"

The present section provides some significant terms and concepts, proposed by Nikolaeva and Spencer (2020), and considers how to define the two types of DAs.

5.3.1. The Base Noun Modifiability Property

This section takes up the behaviour of DAs when they are modified by another adjective. To examine this, we will use a strong test proposed by Spencer and Nikolaeva (2017) and Nikolaeva and Spencer (2020) for the classification of DAs, i.e. whether or not a given word shows the *Base Noun Modifiability Property* (henceforth, BNMP) (cf. 'attributive transparency' in Spencer and Nikolaeva (2017)).[6] To take *friendless* of *trusted friendless* for example, its base word *friend* cannot be modified by another derived adjective *trusted*. Thus, since *trusted* cannot modify *friend*, the phrase *trusted friendless* fails to mean 'lack of trusted friends'. On the other hand, in *trusted friends*, the base (or stem) *friend* of *friends* can be modified by the adjective *trusted*, because the plural meaning of *friend* can be obtained. In this way, the derived words can be divided into two types by examining whether or not their base words exhibit inbound attributive modification.

Spencer and Nikolaeva (2017) and Nikolaeva and Spencer (2020) apply this test to DAs in English and show that they can be classified into two types: derivative-type and inflected word-type. This will be discussed in detail in Section 5.3.3. The BNMP test for DAs can be schematically depicted as in Figure 5.1.

(Nikolaeva and Spencer (2020: 290)). For example, the form *tidal* is "not in any sense a member of the paradigm of the noun *tide*" (Spencer and Nikolaeva (2017: 84)), because *tidal* behaves like an individuated word from its base noun *tide*. On the other hand, since Slavic possessive adjectives and Upper Sorbian possessive adjectives behave as the same lexeme with their base nouns, they can be considered to be true transpositions. Put simply, regarding DAs, transpositional lexemes are derived lexemes which are distinct from the base nouns, whereas true transpositions are adjectival forms or representations of bases. More generally speaking, the former corresponds to a derivational-level word formation, and the latter to an inflectional-level word formation.

[6] This view is based on the property of *lexical integrity*, which is known as the general condition of atomicity of words: "syntactic processes cannot have direct access to the internal structure of words" (Spencer and Nikolaeva (2017: 81), cf. the Atom Condition; Williams (1981), Postal (1969), Di Sciullo and Williams (1987), Ward et al. (1991), Ito and Sugioka (2002)).

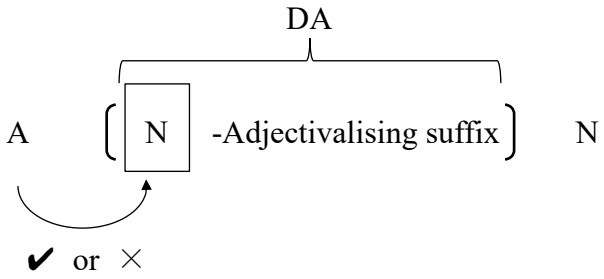

Figure 5.1. Illustration of the Base Noun Modifiability Property of DA

For example, *high* in (15a) cannot modify the base noun *tide* of *tidal* and the expression does not mean 'fluctuations in/at high tide' but only means 'high fluctuations in the tide'. Thus, the DA *tidal* is attributively opaque, whereas *high* in (15b) successfully modifies the noun *tide* and may mean either 'fluctuations in/at high tide' or 'high fluctuations in the tide'.

(15) a. high tidal fluctuations; *high tid-*al* fluctuations

b. high tide fluctuations; high tide fluctuations

(cf. Nikolaeva and Spencer (2020: 34, 291))

This is true of *monosyllabic prepositional phrase* in (16).

(16) a. a monosyllabic prepositional phrase; *a monosyllabic preposition-*al* phrase

b. a monosyllabic preposition phrase; a monosyllabic preposition phrase

(cf. Nikolaeva and Spencer (2020: 291))

Here, (16a) only means 'a phrase which consists entirely of just one syllable', and not 'a phrase headed by a monosyllabic preposition' (Nikolaeva and Spencer (2020: 291)). There is no such an interpretive restriction in (16b), where the modifier *monosyllabic* can modify the noun

preposition.

Furthermore, Spencer (2018) points out that DAs with *-en* behave in the same way as those with *-al* in terms of the BNMP. In (17a), *Brazilian* cannot modify the base noun *wood* of *wooden* and the interpretation in (17a) is thus unavailable.

(17) a. a Brazilian wooden bow; *a Brazilian wood-*en* bow

b. a Brazilian wood bow; a Brazilian wood bow

(cf. Spencer (2018: 267))

The expression *a Brazilian wooden bow* in (17a) thus only means 'a wood bow made in Brazil', whereas *a Brazilian wood bow* in (17b) can be interpreted as either 'a wood bow made in Brazil' or 'a bow made of Brazilian wood'.

By contrast, there are some cases where the BNMP is found in English DAs. For example, *-ed* adjectives exhibit the BNMP, as listed in (18) and (19).

(18) a. a blue-eyed boy; a blue-eye-*d* boy

b. a blue-eye boy; a blue-eye boy

(19) a. a five-pointed star; a five-point-*ed* star

b. a five-point star; a five-point star

(cf. Spencer (2018: 265–266), Nikolaeva and Spencer (2020: 35))

The modifiers *blue* in (18a) and *five* in (19a) can modify the respective base words *eye* and *point* of each derivative (i.e. *eyed* and *pointed*), yielding the meaning 'a boy who has blue eyes' and 'a star which has five points', respectively. Thus, DAs such as *eyed* and *pointed* are attributively transparent. In this case, Nikolaeva and Spencer (2020: 35) argue that the grammar regards a

DA as an alternative form of the base noun and not as a lexically independent word like RAs (i.e. *-al*, *-ic*, *-en*).

The above observations lead us to conclude that English DAs are divided into two types in terms of the BNMP, as summarised in (20).

(20) Two Types of DAs in English

a. DAs that do not show the BNMP: e.g. *tidal*, *prepositional*, *wooden* [RAs]

b. DAs that show the BNMP: e.g. *eyed*, *pointed*, *sleeved* [*-ed* adjectives]

DAs such as *tidal* and *wooden* in (20a) do not exhibit the BNMP, whereas those in (20b) do so. The adjectival class belonging to the former is known as RAs. Nikolaeva and Spencer (2020: 290–291) further point out that, in addition to RAs in (20a), so-called *collateral adjectives* (i.e. Latinate suppletive RAs, cf. Koshiishi (2011: 1)) such as *lunar* (< *moon*), *marine* (< *sea*), and *lateral* (< *side*) also do not show the BNMP. Accordingly, since English RAs do not exhibit the BNMP, they are attributively opaque. However, this does not mean that RAs in any kinds of languages do not show the BNMP. In fact, there are some other languages which represent this.

As discovered by Spencer and Nikolaeva (2017) and Nikolaeva and Spencer (2020), RAs (or other types of DAs) in Tungusic and a number of other Altaic languages show attributive transparency; that is, RAs in these languages exhibit the BNMP. Udihe, one of the Tungusic languages, is a typical language to represent this. In this language, RAs are derived by means of adding the suffix *-mA* to the base word (where *A* stands for a harmonising non-high vowel) (Nikolaeva and Spencer (2020: 94)).

(21) a. niŋka seule-me tege

Chinese silk-RA gown [RA = RA-deriving suffix]

‘a gown made of Chinese silk’

b. gaŋa sele-me tada

hard iron-RA arrow

‘an arrow made of hard iron’

(Nikolaeva and Spencer (2020: 95))

Both expressions in (21) represent the domain-identifying interpretation: a type of *gown* in (21a) and that of *arrow* in (21b). The base *seule* ‘silk’ of *seule-me* ‘silken’ in (21a) can be modified by another adjective *niŋka* ‘Chinese’, as indicated by the meaning ‘a gown made of Chinese silk’.

Another example can be seen in Selkup, a type of Samoyedic (Uralic) language. As illustrated by Nikolaeva and Spencer (2020: 302), that this language has a great variety of morphological devices for creating adjectival representation. In both expressions in (22) and (23), the domain-identifying interpretation is obtained (i.e. a type of *grease* in (22) and that of *oar* in (23)).

(22) po:l′ tol′cï-l′ mïtïn

wood-RA skis-RA grease

‘grease for wooden skis’

(Spencer and Nikolaeva (2017: 87), cf. Nikolaeva and Spencer (2020: 308))

(23) soma alako-nï-l′ lapï

good boat-POSS.1SG-RA oar

‘oar of my good boat’

(Spencer and Nikolaeva (2017: 87))

As shown by the interpretations in (22) and (23), the base words of RAs *tol'cï-l'* 'skis-$_{RA}$' in (22) and *alako-nï-l'* 'boat-$_{RA}$' in (23) are successfully modified by *po:l'* 'wooden' and *soma* 'good', respectively.

In this way, following Nikolaeva and Spencer's (2020) cross-linguistic investigation in terms of the BNMP, we can summarise DAs in English and other languages as in Table 5.3.

Table 5.3. DAs and the BNMP in languages

	Denominal Adjective in Noun Modification	
The BNMP	×	✔
English	Relational Adjective	*-ed* Adjective
Other language	Romance, Balto-Slavic (e.g., Russian), Greek, and other European languages	Chukchi (Chukotko-Kamchatkan language), Selkup (Samoyedic, Uralic), Upper Sorbian, Tundra Nenets, Georgian

(based on Nikolaeva and Spencer (2020))

English RAs exhibit attributive opacity and this tendency can be observed in some other Indo-European languages, as illustrated in Table 5.3. On the other hand, *-ed* adjectives in English show attributive transparency and this grammatical phenomenon is observed in other languages such as Chukchi, Selkup, and Upper Sorbian.

5.3.2. Syntagmatic Category Mixing

This section investigates what the BNMP is used for as a strong test. Specifically, we overview what categorial mixing is and how it occurs in English and some other languages, focussing on DAs (RAs in particular). On the basis of the discussion in Chapter 4, RAs are

regarded as a typical example of category mixing. They inherit many properties of nouns, but their forms are certainly adjectival. Therefore, RAs can be considered to be categorially mixed. Here, we draw our attention to the general characteristics of categorial mixing and look into that of adnominal modification afterwards.

Before investigating the properties of DAs as a mixed category, we first identify what the principal features of categorial mixing in denominal modifiers are, according to the relationship amongst the following three different parameters (i.e. semantics, syntax, and morphology), as illustrated in (24).

(24) Parameters of Category Mixing

a. Semantic: whether the formation of a new word adds a semantic predicate

b. Syntactic: whether it involves syntagmatic mixing

c. Morphological: whether the morphology is essentially derivational or essentially inflectional

(Nikolaeva and Spencer (2020: 33))

In terms of the semantic parameter, in some cases, DAs that are morphologically derived represent a certain added semantic predicate. For example, the morphological marker *-ish* in (25) adds a specific semantic predicate (i.e. 'similar to') to the lexical meaning of the base nouns. Observe the following *-ish* derivatives in (25).

(25) a. boyish; boy-*ish* 'similar to a boy (in some property)'

b. childish; child-*ish* 'similar to a child (in some property)'

(Nikolaeva and Spencer (2020: 33))

The derivatives *boyish* and *childish* in (25) denote both the notion of 'boy / child' and the similitudinal predicate 'similar to N' or 'resembling N', where N is the base noun. This kind of *-ish* derivation can be confirmed in *like*-type PPs in English and APs in other languages (Nikolaeva and Spencer (2020: 33)).

On the other hand, there are some cases where no semantic predicate is added to the morphological change of DAs. Morphology, in this case, does not contribute to the change of the conceptual content of the base nouns at all. That is, the morphological change in those cases is purely formal. Even if we regard such a change as another case of added semantic predicate like similitudinal, it necessarily means "semantically vacuous" (Nikolaeva and Spencer (2020: 34)). As a typical example of this, English has RAs and nouns. English has a method "to modify the denotation of a noun by means of a word that is itself a noun" (Nikolaeva and Spencer (2020: 33), cf. 'modification-by-noun' Nikolaeva and Spencer (2012)). If we regard RAs as a subset of the category noun here, English has four different modificational methods to do this: (i) N-N; (ii) N-P-N (i.e. postnominal prepositional phrase); (iii) N's-N; and (iv) RA-N. Let us observe these in (26)–(29), respectively.

(26) N-N construction

a. wood polish

b. cat food

c. water level

(27) N-P-N construction

a. polish for wood

b. food for cats

c. level of water

(Nikolaeva and Spencer (2020: 33))

The N-N construction in (26) can be paraphrased into the N-P-N construction in (27). The semantic relationship between *wood* and *polish* of *wood polish* in (26a) is not identical to that between *water* and *level* of *water level* in (26c) (cf. compare (27a) and (27c)). That is, the semantic relation between the elements in question is highly dependent on the context in which the expression is used, as well as on the lexical semantics of its elements (cf. frame evocation). The same consideration applies to the N's-N construction in (28) and the RA-N construction in (29).

(28) N's-N construction

a. cats' whiskers

b. children's story

c. men's room

(29) RA-N construction

a.	wooden floor	(cf. floor of wood)
b.	prepositional phrase	(cf. preposition phrase)
c.	Aristotelean poetics	(cf. the poetics of Aristotle)
d.	feline haemoglobin	(cf. the haemoglobin of cats)

(Nikolaeva and Spencer (2020: 33))

All these constructions have no specific semantic predicate to be added to the denotation of the head noun.

We then turn to the syntactic parameter, which refers to syntagmatic category mixing in particular. We will observe how DAs in English and other languages show syntagmatic category mixing in adnominal modification. Broadly speaking, as pointed out by Spencer

(2013), there are two ways in which a word shows a categorial mixing: *syntagmatic mixing* and *paradigmatic mixing*. In this section, we will mainly discuss the former because English lacks rich morphology; the latter largely concerns the mixing of morphological properties of one category and another category.[7]

Let us first look at general characteristics of syntagmatic mixing. A syntagmatically mixed category "may behave as though it were the head of one lexical category to its left (e.g. an NP or DP) and a different lexical category to its right (e.g. a VP)" (Nikolaeva and Spencer (2020: 25)). This can be schematically illustrated as in Figure 5.2.

[7] Nikolaeva and Spencer (2020: 22) observe that paradigmatic category mixing can be found in a number of Uralic and Altaic languages. In these languages, Spencer and Nikolaeva (2017: 79) explain that "the derived adjectival form retains some of the inflectional morphology (case and/or number and/or possessive)". Russian adjectives are also good examples of this. They "inflect exactly like adjectives and belong to the adjectival inflectional class, even though they have the syntactic distribution and meanings typical of nouns" (Nikolaeva and Spencer (2020: 23)). Let us observe this in (i).

(i) a. stolovaja [A] 'dining room, canteen' (feminine adjective)
b. stolovaja komnata 'room having something to do with tables'
c. komnata [N] 'room' (feminine noun)
(Nikolaeva and Spencer (2020: 24))

In (ia), *stolovaja* has the form of feminine gender adjective but its syntax is in fact a noun. The reason why this adjective takes the feminine gender agreement forms in its declension may be attributed to the phrase in (ib), which is headed by the feminine gender noun *komnata* in (ic). Therefore, paradigmatic mixing little affects nouns in all their syntactic and semantic properties.

English also has a kind of such mixing as in (ii).

(ii) We must consider the needs of {the poor / the poorer / the (very) poorest} in our society and not those of the obscenely rich.
(Nikolaeva and Spencer (2020: 24))

Certain adjectives can be converted into person nouns, "though almost always with a generic rather than referential interpretation" (Nikolaeva and Spencer (2020: 24)).

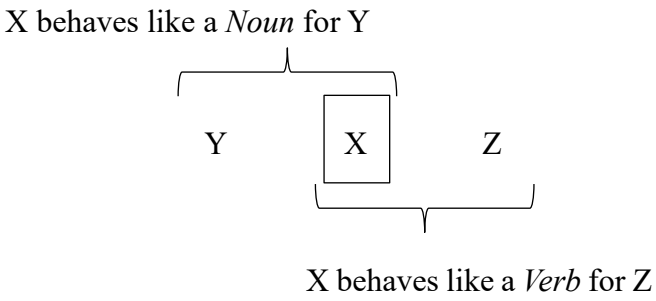

Figure 5.2. The syntagmatically mixed category *X*

The word *X* here is categorially mixed and can be regarded as having two distinct categorial properties (i.e. nominal and verbal), playing a different role for the grammatical elements on its left and right, respectively.

A well-known syntagmatic mixing in English is nominalisation, which preserves the argument structure of verbs, but simultaneously, it shows other properties of nouns or adjectives. Observe the following pair of expressions, in which the deverbal nominalisation with the suffix *-ing* (i.e. a gerund) is represented in (30b). The gerundive form *burning* of the base verb *burn* retains some of its verbal argument structure, but it also represents verb arguments to a noun, by means of the possessive *'s* marker (i.e. *Tom's*) or an *of*-phrase (i.e. *of the letter*).

(30) a. Tom burnt the letter

b. Tom's burning of the letter [POSS-*ing* construction]

(Nikoaeva and Spencer (2020: 25))

On the other hand, *burning* in (31a) looks more like a verb than that of (30b) because the grammatical subject and object arguments are expressed as accusatives. This can also be expressed in an infinitive form, as shown in (31b). Further, (31c) is an instance of the possessive and accusative construction, in which the verb head is changed into a noun, but

inherits some verbal properties of the base verb.

(31) a. (We were surprised at) {Tom / him} burning the letter [ACC-*ing* construction]

b. We arranged for {Tom / him} to burn the letter [Infinitive construction]

c. (We were surprised at) {Tom's / his} burning the letter [POSS-ACC construction]

(Nikoaeva and Spencer (2020: 25–26))

The observations above make us recognise that the *-ing* form yields two distinct categorial labels: verb and noun.

Let us next look at another example of syntagmatic mixing in which an adjective is nominalised in Japanese.[8] The abbreviations A and AN in (32) stand for the 'true' adjective class and the 'adjectival noun' class, respectively. The suffix *-sa* attached with adjectives provides the meaning of 'degree/fact of being A/AN'.

(32) a. taka-i 'tall' (A); taka-sa 'hight'

b. sizuka (na) 'quiet' (AN); sizuka-sa 'quietness'

(Nikoaeva and Spencer (2020: 27))

[8] In English and other European languages, there is no syntagmatic mixing with property nominalisations, as shown in (i).

(i) a. * slightly oldness
b. * very tallness
c. * more usefulness
d. * most expensiveness

(Nikolaeva and Spencer (2020: 27))

However, as pointed out by Nikolaeva and Spencer (2020: 27), such property nominalisations can be found in some other languages.

The suffix also attaches to compound adjectives as in (33a, b) and to the adjectival form of verbs (i.e. desideratives) as in (33c) and other adjectival forms as in (33d, e).

(33) a. [A [N otoko] -rasi] -sa
man-like-SA
'manliness'

b. [A [N oku] -huka] -sa
end-deep-SA
'profoundness (profoundity)'

c. [A [V mi] -ta] -sa
see-DESID-SA
'desire to see'

d. [A [V [N damas] -are] -yasu] -sa
deceive-PASS-easy-SA
'the property of being easy to deceive'

e. [A [V [N mukuw] -are] -na] -sa
reward-PASS-NEG-SA
'unrewardedness'

(Sugioka (2011: 148–150), cf. Nikoaeva and Spencer (2020: 27))

In this way, Japanese also has a kind of syntagmatic category mixing.

The syntactic parameter of categorial mixing can also be observed in other languages. For example, Udihe, a Tungusic language, has a type of derived adjective where the suffix adds a proprietive meaning, as represented in (34).[9]

[9] Spencer and Nikolaeva (2017) and Nikolaeva and Spencer (2020) call this kind of derived

(34) ic'a sita-xi a:nta

small child-PROPR woman

'woman with a small child'

(Spencer and Nikolaeva (2017: 85))

The word *sita-xi* 'having a child' in (34) is called a proprietive adjective, which modifies the head *a:nta* 'woman'. This adjective is derived from the noun *sita* 'child'. As indicated by the interpretation, the adjective *ic'a* 'small' modifies only *sita* 'child' of *sita-xi* 'having a child'. Similarly, the example in (35) exhibits syntagmatic mixing (though it is an example of paradigmatic mixing, more precisely), which is another example of Tungusic language, Evenki.

(35) aja-l oro-l-či-du asi:-du

good-PL reindeer-PL-PROPR-DAT.SG woman-DAT.SG

'to the woman with good reindeer (PL)'

(Spencer and Nikolaeva (2017: 85))

The proprietive DA *oro-l-či-du* 'having reindeer' derives from the noun *oro* 'reindeer' and modifies the noun *asi:-du* 'woman', agreeing in case with the head. The DA is also modified by the adjective *aja-l* 'good', which shows number agreement with the base noun *oro*. The example in (35) shows both semantic and syntactic parameters of categorial mixing.

Recall that English *-ed* adjectives show syntagmatic mixing in the same way as in Udihe and Evenki. A strong test to confirm this is whether or not they exhibit the BNMP. As already illustrated in (18), *-ed* adjectives evidently represent the BNMP. One of the examples is

adjective (i.e. added certain semantic predicates and exhibits the syntagmatic mixing) 'meaning-bearing-transposition'.

repeated in (36).

(36) a. a blue-eyed boy; a blue-eye-*d* boy

b. a blue-eye boy; a blue-eye boy

By contrast, English RAs do not retain 'syntactic nounhood' (Nikolaeva and Spencer (2020: 34)). That is, they do not show syntagmatic mixing in terms of the BNMP. The examples in (37) and (38) are repeated from (15) and (17), respectively.

(37) a. high tidal fluctuations; *high tid-*al* fluctuations

b. high tide fluctuations; high tide fluctuations

(38) a. a Brazilian wooden bow; *a Brazilian wood-*en* bow

b. a Brazilian wood bow; a Brazilian wood bow

English RAs, therefore, show neither semantic change nor syntagmatic category mixing. As argued by Nikolaeva and Spencer (2020), therefore, it is the BNMP that is crucial for assessing whether or not the derived adjectives are truly categorially mixed words in the language. In this respect, *-ed* adjectives represent the BNMP and a certain possessive meaning, whereas RAs exhibit none of them.

On the basis of the above observations, we will examine in the next section how *-ed* adjectives and RAs in English can be captured, in terms of the remaining parameter (i.e. morphology; namely, whether they are derivatives or inflected words).

5.3.3. The Derivative-Type and the Inflected Word-Type

On the basis of the fact that DAs in English behave differently in terms of the BNMP, we

clarify what such a behavioural difference stands for from a morphological perspective.

By examining the categorial status of DAs, we have clarified that there are actually two types of them in terms of whether they show certain categorial mixing with respect to semantic and syntactic parameters, which are summarised in (24). The last parameter is a morphological one; that is, 'whether the morphology is essentially derivational or essentially inflectional'. We will next survey this parameter in DAs and divide them into the derivative-type and the inflected word-type with respect to the adjectivalising suffixes.

First of all, let us consider *-ed* adjectives. With respect to the fact that English *ed*-adjectives show the BNMP, Nikolaeva and Spencer (2020: 35) explain as follows: "In the case of English *ed*-adjectives [sic] the meagre morphology of the language means that we cannot demonstrate conclusively that the adjective is an inflected form of the noun lexeme" (Nikolaeva and Spencer (2020: 35)). Thus, Nikolaeva and Spencer (2020) regard the BNMP of *-ed* adjectives as an exception because Present-Day English has lacked the inflectional system. They do not give any further accounts or explanation to this. However, we argue that *-ed* adjectives can be considered equivalent to an inflected form of noun. This claim can be strengthened by providing the diachronic fact with the suffixal status.

It is generally well known that inflectional elements were abundant in Old English (OE) and Middle English (ME). As time has gone by, however, English has lacked such elements (i.e. *deflection*) and represented the grammar with the use of syntactic rule (e.g. word-ordering); that is, English has changed its linguistic status from 'synthetic' to 'analytic' (cf. Kastovsky (2006), Feist (2012)). Let us observe the adnominal modification of OE in (39), where the modifiers show certain inflections agreeing in number, gender, and case with the heads and in accordance with whether the expression is definite (i.e. weak inflection) as in (39a) or indefinite (i.e. strong inflection) as in (39b). In addition, the former is an instance of prenominal modification and the latter one of postnominal modification.

(39) a. þone hwitan<weak> hlaf
the:SG.MASC.ACC white:SG.MASC.ACC loaf:SG.MASC.ACC
'the white loaf'

b. gebeoras bliðe
companion:PL.MASC.ACC merry:PL.MASC.ACC
'merry companions'

(Haumann (2010: 58))

In (39a), the modifier *hwitan* 'white' represents weak inflection and shows agreements in number (i.e. singular), gender (i.e. masculine), and case (i.e. accusative). Similarly, the modifier *bliðe* 'merry' in (39b) also shows almost the same inflection as (39a) except for number (i.e. plural) and represents strong inflection. In this way, with respect to adnominal modification, the modificational relation and feature-agreement between modifiers (i.e. adjectives) and heads (i.e. nouns) are expressed by inflection in OE (cf. Fischer (2001), Allen (2008), Pysz (2009), Haumann (2010), Ibaraki (2015), to name but a few).

We then examine the suffix *-ed* in particular.[10] As pointed out by Marchand (1969: 264) and Hirtle (1970: 20), this suffix originates in *-ede* in OE and expresses the meaning of 'having or provided with' regarding the head nouns (cf. *OED*, s.v. *-ed* (*suffix2*)). For example, OE instances are *bierded* 'bearded', *hringed* 'ringed', and *sceacged* 'shagged' (Marchand (1969: 264)). Incidentally, there are many compound forms of this in OE such as *aneagede* 'one-eyed', *bælcfeaxede* 'black-haired', *þribeddod* 'having three beds', and *þrifotud* 'three-footed' (Hirtle (1970: 20)). The present topic (i.e. *a blue-eyed boy*) is thus a variation of this class (cf.

[10] Marchand (1969: 264) and Hirtle (1970: 25) clearly explain that, though both suffixes have probably one origin, *-ed* of *-ed* adjectives differs from that of past participle (e.g. *fractured*, *painted*, *opened*). The former belongs to the 'lexical morphology' of English but the latter belonging to its 'grammatical morphology'.

compound adjectives; bahuvrihi compounds). Recall here that *-ed* adjectives exhibit the BNMP. The behaviour is true of DAs of Udihe in (34) and of Evenki in (35). Thus, we are led to a conclusion that the morphological status of *-ed* adjectives in English is the same as that of Udihe and Evenki inflectional suffixes forming DAs and thus *-ed* adjectives can be regarded as a type of 'inflected word-type DA'.

On the other hand, unlike *-ed* adjectives, English RAs do not show the BNMP and syntagmatic category mixing (i.e. RAs show 'lexical (or lexemic) integrity' as a distinct word from their base nouns). This means that RAs in English have a morphologically different word-status from their base nouns. That is, RAs can be regarded as a type of 'derivative-type DA'. Therefore, we can divide English DAs into two types, as illustrated in (40).

(40) Two Types of DAs

a. Derivative-type: RAs (e.g. *tidal*, *prepositional*, *wooden*)

b. Inflected word-type: *-ed* adjectives (e.g. *eyed*, *pointed*, *sleeved*)

In Nikolaeva and Spencer's (2020) terms, the derivative-type in (40a) corresponds to 'transpositional lexeme' and the inflected word-type in (40b) 'true transposition'.

This consequence can be supported by the similar behaviour of derived nominals (henceforth, DNs) in English. Let us first look at event nominals, which are generally known as gerunds (i.e. verbal gerunds). For example, the form *destroying* in the sentence in (41) shows syntagmatic category mixing in that it can have the specifier either *The Government's* or *Their* like a noun (a possessive form), but simultaneously, it is modified by the adverb *systematically* and takes the direct object *all the evidence* like a verb. Put more simply, *destroying* behaves like a 'noun' for its left grammatical element, while it behaves like a 'verb' for its right.

(41) {The Government's / Their} systematically destroying all the evidence appalled us.

(Spencer and Nikolaeva (2017: 80))

We can recognise that *destroying* in (41) is thus categorially mixing between noun and verb.

There are in fact two morphological angles to refer to this class of DN. On the one hand, we can regard them as 'derivatives' in that their categorial status is turned from base verbs to nouns. On the other hand, they are regarded as 'inflected words' in that they must change their categorial status (i.e. V to N) due to the syntactic requirement, since it is generally the nominal class that can occur in the grammatical subject position.

In order to disambiguate this alternative view, let us consider another type of DN, as shown in (42) and (43). In comparison to *expression* in (42a) and *assignment* in (43a), those in (42b) and (43b) cannot take modifiers such as *constant* and *frequent*, since these temporal modifiers force the complex event reading of the nouns. Thus, the DNs in the (a)-examples are called 'complex event nominals (CENs)', whereas those in the (b)-examples are 'result nominals (RNs)'.

(42) a. The frequent expression of one's feelings is desirable.

b. * The frequent expression is desirable.

(43) a. The constant assignment of unsolvable problems is to be avoided.

b. * The constant assignment is to be avoided.

(Grimshaw (1990: 50))

As argued by Grimshaw (1990), only CENs can have argument structures and event readings, but such DNs cannot behave as verbal gerunds (e.g. *destroying* in (41)). DNs formed by the suffixes *-ment* and *-ation* thus do not retain the verbal properties like gerunds. In comparison to *destroying* in (41), the DNs in (42) and (43) have morphologically different word-status from

their own base verbs (i.e. *express* and *assign*). In other words, gerunds can be regarded as the inflected word-type (i.e. a type of word form of the base verb), whereas DNs such as CENs and RNs are the derivative-type (i.e. they are 'truly' derived from the base verbs; namely, they completely turned into nouns from the base verbs).

On the basis of the above observation, we are now in a position to summarise the points. Event nominals such as gerunds retain their verbal status from the bases, whereas CENs and RNs do not (cf. Nikolaeva and Spencer (2020: 285)). DNs, as in the case of DAs, can also be divided into two levels (i.e. derivation and inflection), which are represented as in (44).

(44) Two Types of Deverbal Nominals

a. Derivative-type: Derived nominals (e.g. *expression*, *assignment*)

b. Inflected word-type: Verbal gerunds (e.g. *destroying*)

Therefore, the apparent word-formation of DAs can be divided into two levels, the derivative-type and the inflected word-type. Such a distinction can be supported by the case of DNs. Nikolaeva and Spencer (2020) conclude, based on the BNMP criterion (i.e. whether or not the target word shows syntagmatic category mixing), that English RAs are the derivative-type (cf. 'transpositional lexeme' in their term). Although they do not clearly regard *-ed* adjectives as the inflected word-type, we claim that they should belong to this category.

5.3.4. Summary

In this section, we have overviewed what Nikolaeva and Spencer (2020) have argued in terms of *mixed categories*. In English adnominal modification, DAs as modifiers can be divided into two types: the derivative-type and inflected word-type. English RAs belong to the derivative-type, since they are derived without the addition of semantic predicates and do not

show the BNMP (i.e. a strong test for whether the target word makes syntagmatic mixing). By contrast, *-ed* adjectives are attributed to the latter inflected word-type, since they have additional possessive meanings and represent the BNMP. A similar division applies to the case of DNs (i.e. CENs and RNs (i.e. *-ment*, *-ation*) are the derivative-type and verbal gerunds (i.e. *-ing*) are the inflected word-type). Let us summarise the discussions so far in Table 5.4 below.

Table 5.4. The three parameters and English DAs

Parameters	Relational Adjectives	*-ed* Adjectives
Semantic (whether the formation of a new word adds a semantic predicate)	No	Yes
Syntactic (whether it involves syntagmatic mixing)	No	Yes
Morphological (whether the morphology is essentially derivational or essentially inflectional)	The derivative-type (cf. transpositional lexeme)	The inflected word-type (cf. true transposition)

We thus conclude that RAs are, in fact, not of the category mixing type, while *-ed* adjectives are. In other words, RAs are 'morpholexically adjectives', while *-ed* adjectives are 'morpholexically nouns'.[11]

[11] In this point, we obtain an interesting fact in terms of *-en* and *-ed* adjectives in qualitative use. Both *wooded* and *wooden* can be converted to true adjectival predicates (i.e. QAs) in some cases. Observe both examples in (i).

(i) a. It is well wooded. 'furnished with wood or woods' (*OED*, s.v. *wooded*)
b. He is wooden. 'mentally dull' (*OED*, s.v. *wooden*)

On the basis of Nikolaeva and Spencer's (2020) lexeme-based approach, *wooded* in (ia) is converted from the inflected noun (i.e. *wooded* (QA) < *wood-ed* (a paradigm of N)), whereas *wooden* in (ib) is turned from the derived adjective (i.e. *wooden* (QA) < *wooden* (RA)). Put differently, the derivation process of *wooded* is direct (QA < N; one-step derivation), whereas that of *wooden* is indirect (QA < RA < N; two-step derivation). Although *wooded* can also be converted into QA from the verb *wood* 'to surround with

Incidentally but interestingly, this consequence seems to be completely the inverse of meaning-based analysis. As pointed out by many linguists (particularly in Chapter 4), RAs show a number of nominal properties (e.g. unpredicability, adjacency to nouns, lack of gradability, and so on) and their semantics are almost the same as nouns (i.e. *industrial output* vs. *industry output*), whereas *-ed* adjectives clearly differ in the semantics of nouns (i.e. nouns themselves do not have any possessive meanings). In this respect, RAs might seem to be more of the category mixing type than *-ed* adjectives in that the former apparently retains nominal properties in terms of nominal properties. However, this approach actually fails to precisely capture many facts of mixed categories.

5.4. Domain Modifiers in the Lexicon

This section further investigates the morphological status of DAs in English with respect to the adjectival suffixes. We also attempt to recapture the two types of DAs (i.e. the derivative-type and inflected word-type) from a Construction Grammar point of view. Through the analysis, one of the RA forming suffixes (i.e. *-en*) turns out to be problematical. While giving a reasonable explanation for this, we will further discuss how domain modifiers are stored in the lexicon (cf. construct-i-con). Specifically, by analysing both meaning and formal properties of domain modifiers, we can illustrate how DAs as domain modifiers establish their own constructional network.

5.4.1. Denominal Adjectives as 'Adjectival' Constructions or 'Nominal' Constructions

The present section, from a heterogeneous Construction Grammar perspective, recaptures the two types of DAs (i.e. the derivative-type and inflected word-type), which we have defined

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or enclose in a wood or trees' (*OED*, s.v. *wood* (*verb*$_2$)), we need to survey such a different derivation process in creating QAs. The relevant discussion is given by Nagano (2018a).

in the previous section. Recall that the Construction Grammar approach to morphology (cf. Construction Morphology) regards certain form-meaning gaps as unproblematic (e.g. conversion, subtractive morphology, and paradigmatic word-formation). As discussed in the previous sections (see also Chapters 1 and 2), a construction is a unit of form-meaning pairing, which implicitly tells us that the form and meaning structures within a construction are intrinsically separate from each other and each exists independently (i.e. heterogeneous Construction Grammar).

On the basis of the theory of (heterogeneous) Construction Grammar, the morphological boundary between derivation and inflection is not clearly demarcated, but rather they are actually 'continuous' in a way. This is because both morphological processes are associated by certain schematic constructions in a large network of constructions (i.e. *derivational constructions* and *inflectional constructions*). Derivational constructions are "instrumental for word formation", whereas inflectional constructions "mark grammatical distinctions" (Hilpert (2019: 76)). Booij (2010, 2013) explains that both derivation (i.e. word formation) and inflection involve *schemas*. Here, the schema "characterises a set of words formed according to a certain pattern", and at the same time, it is "the recipe for new forms" (Masini and Audring (2019: 378)).

In terms of derivational constructions of DA, the schema generally states the input with the nominal properties (i.e. base nouns) and its output is an adjective with the adjectival properties (e.g. *beautiful* < *beauty*, *woody* < *wood*, *picturesque* < *picture*, *nervous* < *nerve*). With respect to RAs, however, this general schema cannot be directly applied because the output properties of RAs largely inherit nominal properties of the base nouns (see Chapter 4). In this respect, RAs as a type of construction show a kind of form-meaning gap in their resultant constructions. Their forms are apparently 'adjectival', but their meanings and functions are still 'nominal'. Thus, the class of RAs can be considered to be simply form-oriented schema in relation to certain adjectival suffixes. This can be roughly illustrated as in (45).

(45) The Constructional Schema of RAs in English

a. Form: $[[X]_N$ -RA FORMING SUFFIX$]_A$; BNMP [×]

b. Meaning: [OBJECT-denoting]

While RAs formally turns from noun to adjective (i.e. more precisely, the noun changes to an attributive modifier form), their meanings maintain the nominal property (i.e. object-denoting).[12] In other words, when deriving RAs, no semantic predicates are added to the bases. Furthermore, as strongly argued by Nikolaeva and Spencer (2020), since English RAs do not show the BNMP, they are lexically independent words from their base nouns; namely, they are a kind of 'true' derivatives (i.e. they are not 'transpositions' at all; *transpositional lexemes*). The utmost important point here is that schemas are "output-oriented and the resulting structure does not need to show isomorphism between form and meaning" (Masini and Audring (2019: 379)). On this basis, I argue that RAs should be regarded as *Adjectival constructions*, since they are "adjectives precisely so that they can function as attributive modifiers to nouns" (Nikolaeva and Spencer (2020: 291)). Hence, English RAs can be thought to be only morpholexically changed derivatives.

Let us then consider another type of DA (i.e. *-ed* adjectives). As for *-ed* adjectives, unlike RAs, the suffix *-ed* adds a certain possessive meaning 'having or provided with' to the base noun. However, *-ed* adjectives exhibit the BNMP, which means that the apparent derivatives are syntagmatically mixed. That is, *-ed* adjectives are not morphologically different words from their base nouns; namely, they are inflected word-type DAs. From a heterogeneous Construction Grammar perspective, we regard *-ed* adjectives as another type of schema, since they are formed according to a certain pattern (i.e. added the suffix *-ed*). That is, *-ed* adjectives

[12] Here, we will refer to the semantics of nominal as 'object-denoting' for the sake of reference. We will treat this in detail in later sections.

are grammatically marked word form of the base noun (i.e. merely a different form of the base noun). On this basis, as a type of inflectional construction, I argue that *-ed* adjectives should be regarded as *Nominal constructions* (i.e. *-ed* adjectives are morpholexically nominal). Masini and Audring (2019: 384) also explain that inflectional affixes should be recognised as "parts of words rather than in isolation". The form-meaning relation of *-ed* adjectives is provided in (46).

(46) The Constructional Schema of *-ed* adjectives in English

a. Form: $[[X]_N$ *-ed*$]_A$; BNMP [✔]

b. Meaning: [POSSESSIVE]

Notice that both Adjectival and Nominal constructions are partially overlapping, and they are not making a clear-cut distinction; rather, these two types constitute a constructional continuum and thus in some cases they can be combined with each other in the constructional network. That is, both of the RA construction and *-ed* adjective construction are intrinsically derived via the DA construction as a schema. To visually understand the constructional relationship between the two types, observe Figure 5.3 below.

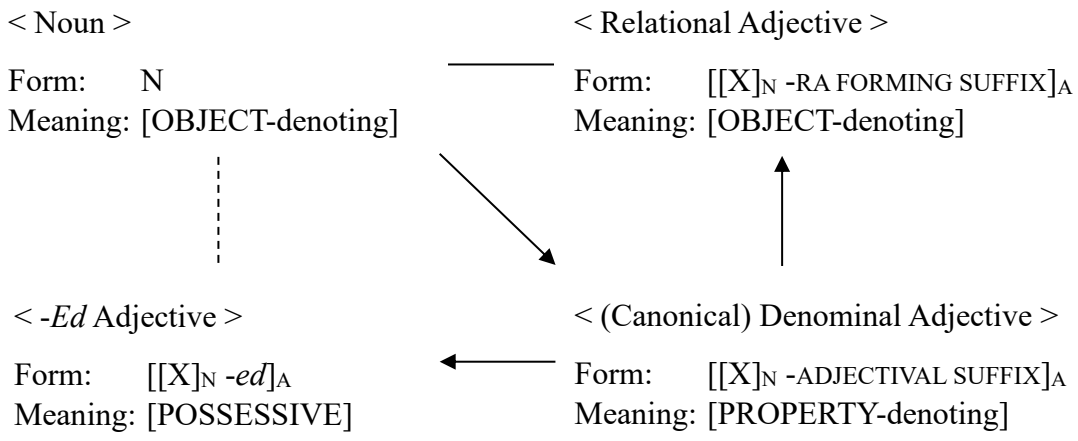


Figure 5.3. The constructional network of N, DA, RA, and *-ed* adjective

The DA construction, as expressed by a diagonal arrow, takes nouns as its inputs to derive the two types of adjectival derivative constructions (i.e. the RA and *-ed* adjective constructions). The RA construction inherits many nominal properties from the base nouns, but the lexical integrity of RAs is so strong that RAs do not exhibit the BNMP. This means that the RA construction 'morpholexically' differs from the N construction; namely, they are 'lexically independent words' from the base nouns (i.e. true derivatives). The constructional relationship between the RA construction and the N construction is indicated by the solid line (i.e. the schematic relation). On the other hand, as represented by the dotted line, the constructional relationship between the *-ed* adjective construction and the N construction is paradigmatic, since *-ed* adjectives show the BNMP; namely, they are 'lexically same words' (i.e. a different word form of nouns).

Accordingly, the RA construction and *-ed* adjective construction are constructionally related via the DA construction, but their constructional statuses in relation to the N construction are not strictly the same. Such a constructional network is generally called 'default inheritance' in the theory of Construction Grammar. That is, since the RA construction is morpholexically different from the N construction, it should correspond to the Adjectival construction. As for the *-ed* adjective construction, since it is morpholexically the same as the N construction, it is still the Nominal construction. Then, we should next examine what kind of factor is involved in such a different constructional pattern.

We will claim that the type of affixes crucially concerns here, and this must be one of the significant features for determining the lexical class (cf. Giegerich (1999)). When we focus on the status of suffixes of RA, as illustrated in Chapter 4, adjectival suffixes forming RAs such as *-al*, *-ical*, *-ial*, *-oidal*, *-orial*, and *-ual* are basically all from Romance or Greek and they can only attach nouns of Romance or Greek origin "but almost never from Germanic nouns" (Levi (1978: 153)). We argue that DAs formed with this class of suffix yield the derivative-type (i.e. the

Adjectival construction). The suffix *-ed*, on the other hand, originates in Germanic; namely, a native suffix. This kind of native suffix normally produces the inflected word-type (i.e. the Nominal construction).

Therefore, we can distinguish two types of DAs in terms of whether they derive from Romance-type suffixation or Germanic-type suffixation (though the term 'suffixation' does not seem appropriate for Construction Grammar). Here, following Giegerich (1999), we will use the term [±Latinate] to distinguish the origins of suffixes for the sake of reference. The Romance suffix is expressed as [+Latinate], whereas the Germanic suffix is [–Latinate]. In terms of origins of suffix, DAs can be classified as shown in (47), where the DAs attached with [+Latinate] suffixes in (47a) cannot show the BNMP, whereas those formed with [–Latinate] suffixes in (47b) can.[13]

[13] Note, however, that there are some cases where even if [+Latinate] suffixes are attached to the base nouns, the resultant RAs apparently show the BNMP. Let us consider the italicised expressions in both (i) and (ii), in which the (a)-readings indicate obviously intended and appropriate interpretations, while the (b)-readings are inappropriate.

(i) Let me briefly sketch the history of *generative grammatical studies* in the Japanese language.
(cf. generative grammar studies)
a. 'studies of generative grammar'; [[generative grammar]-*tical*]$_{RA}$ studies
b. # 'generative studies of grammar'; generative [[grammar-*tical*]$_{RA}$ studies]

(ii) […] I did not have *covert operational responsibilities* in the lead-up to the Iraq War […]
(cf. covert operation responsibilities)
a. 'responsibilities for covert operation'; [[covert operation]-*al*]$_{RA}$ responsibilities
b. # 'covert responsibilities for operation'; covert [[operation-*al*]$_{RA}$ responsibilities]
(https://www.washingtonpost.com/news/posteverything/wp/2018/04/18/i-was-outed-as-a-cia-covert-ops-officer-why-it-matters-that-trump-pardoned-scooter-libby/ [accessed in November 2020])

As can be inferred from the (a)-readings in both examples, the additional adjectives (i.e. *generative* in (ia) and *covert* in (iia)) can modify the base nouns of the RAs (i.e. *grammar* of *grammatical* in (i) and *operation* of *operational* in (ii)). Hence, these instances appear to be exceptional cases and counterexamples. However, I claim that the relevant A-N combinations (i.e. *generative grammar* and *covert operation* 'an intelligence activity') have been highly conventionalised or fully fixed; namely, they have already been established as nouns, i.e. A-N compounds (cf. phrasal names). In other words, the RA-forming suffix in question (e.g. *-al*) is, in fact, attached to the A-N compounds. See also Spencer (1988) for the relevant discussion (i.e. *bracketing paradoxes*).

(47) Denominal Adjectives

a.	*-al*, *-ic*, *-ary*	[+Latinate]:	Relational adjectives
b.	*-ed*	[–Latinate]:	Derived adjectives

As explained by Levi (1978) and Giegerich (1999), etymology is not a sufficient condition, but it could be at least one of the important features involved in word-formation.

This kind of analysis can also be seen in the case of deverbal nominals (DNs). For example, the suffix *-ing* is Germanic, whereas *-ment* and *-ation* are of Romance origin. They are summarised as in (48).

(48) Deverbal Nominals

a.	*-ment*, *-ation*	[+Latinate]:	Derived nominals (e.g. RNs and CENs)
b.	*-ing*	[–Latinate]:	Verbal gerunds

The [+Latinate] suffixes in (48a) do not show syntagmatic category mixing, whereas the [–Latinate] suffix in (48b) does. Therefore, [+Latinate] suffixes are used at a derivation level, whereas [–Latinate] suffixes are used at an inflection level.

Along these lines, we have argued that, though English DAs are apparently all derivatives (i.e. in the sense that they change their categorial statuses from N to A), they are actually divided into two types in terms of the BNMP (i.e. the derivative-type and inflected word-type). This fact can be reduced to whether they undergo the process of derivation or inflection and what kind of adjectivalising suffix is involved in their word-formation.

However, we necessarily face one big problem with the specific RA forming suffix. In fact, the suffix *-en* of *wooden* is an English native suffix but it yields RAs. Then, the question in (49) naturally arises.

(49) Although *-en* is a [–Latinate] suffix, why does this suffix yield the derivative-type DA?

We should now investigate the suffixal status of *-en* and find a plausible answer to this new question in the next section.

5.4.2. *-En* Adjectives in Transition[14]

This section surveys the suffix *-en* and its suffixal status, adducing some important facts. From a diachronic point of view, we will specifically focus on the origin of the suffix *-en* and argue that the DAs containing *-en* behave differently from speaker to speaker. We argue that the diachronic change in English (i.e. from a synthetic language to an analytic language) influences the status of *-en* as a [–Latinate] suffix. This factor seems crucial for determining whether the *-en* type of RA is in transition from the inflected word-type to the derivative-type (i.e. from the Nominal construction to the 'true' Adjectival constructioin).

Let us recall the behaviour of *-en* adjectives in terms of the BNMP in (50).

(50) a. a Brazilian wooden bow; * a Brazilian wood-*en* bow

b. a Brazilian wood bow; a Brazilian wood bow

The judgement is given by Spencer (2018). He contends that *-en* adjectives do not show the BNMP and thus they are not the instances of syntagmatic category mixing. The BNMP criterion also affects the interpretive difference. Let us observe this in detail in (51), which is repeated from (13).

[14] A part of this section is a revised and extended version of Togano et al. (2020) and Ishida et al. (to appear).

(51) a. a Brazilian wooden bow

(i) 'a wood bow made in Brazil'

(ii) *'a bow made of Brazilian wood'

b. a Brazilian wood bow

(i) 'a wood bow made in Brazil'

(ii) 'a bow made of Brazilian wood'

The (i)-interpretation in (51a, b) indicates that *Brazilian* modifies the head noun *bow*. On the other hand, the (ii)-interpretation shows that *Brazilian* modifies *wood*(*-en*). While the noun *wood* in (51b) can be modified by *Brazilian*, the RA *wooden* in (51a) cannot. However, if the suffix *-en* is [–Latinate], our analysis simply expects that *-en* type RAs could exhibit the BNMP. Interestingly, our survey shows that, depending on the speaker, the (i)-interpretation is also possible in the case of (51a) as well. This means that the morphological status of *-en* adjectives varies amongst speakers; for those who interpret (51a) only as (i), the adjectives are derivative-type while for those who allow the (i)-interpretation, they are inflected word-type. This judgement must be consistent in the speaker's language.

We have asked two informants about other similar cases in (52)–(55).[15] The judgement varies from speaker to speaker, as indicated by the marker '%'. One of them judges that each (a)-example does not show the BNMP and thus does not have the (ii)-interpretation. However, the other informant says that *-en* adjectives in all examples below can show the BNMP in some cases.

[15] Although it is obvious that the number of informants is quite small and we should not rush for a conclusion, the judgements of the speaker are extremely consistent and thus we can acknowledge that *-en* suffix still has an inflectional status in some speakers.

(52) a. stale oaten loafs

(i) stale oaten loafs ‘stale loafs made of oat’

(ii) %stale oat-*en* loafs ‘loafs made of stale oat’

b. stale oat loafs

(i) ‘stale loafs made of oat’

(ii) ‘loafs made of stale oat’

(53) a. coarse woolen stockings

(i) coarse woolen stockings ‘coarse stockings made of wool’

(ii) %coarse wool-*en* stockings ‘stockings made of coarse wool’

b. coarse wool stockings

(i) ‘coarse stockings made of wool’

(ii) ‘stockings made of coarse wool’

(54) a. a new wooden chair

(i) a new wooden chair ‘a new chair made of wood’

(ii) %a new wood-*en* chair ‘a chair made of new wood’

b. a new wood chair

(i) ‘a new chair made of wood’

(ii) ‘a chair made of new wood’

(55) a. carved oaken screens

(i) carved oaken screens ‘carved screens made of oak’

(ii) %carved oak-*en* screens ‘screens made of carved oak’

b. carved oak screens

(i) ‘carved screens made of oak’

(ii) ‘screens made of carved oak’

Thus, *-en* adjectives in the latter informant’s language still have the status not only of the Adjectival construction but also of the Nominal construction. Although we need to ask more informants to validate the results, it is important to point out again that the judgements by the two speakers are quite consistent for all examples.

5.4.2.1. *-En* as an Inflectional Suffix

We need to examine next why the suffix *-en* behaves differently in terms of the BNMP. In order to give a plausible explanation for this, we will consider the status of the suffix by comparing it to the suffix *-ed* with respect to the following two points: (i) the morphological status and (ii) the diachronic change.

According to OED, the suffix *-en* originates in Old Saxon and Old High German *-in*. It attaches to noun-stems and derive adjectives with the sense ‘pertaining to’ or ‘of the nature of’. In Germanic languages, “the adjectives so formed chiefly indicate the material of which a thing is composed” (*OED*, s.v. *-en* (*suffix*$_4$)). However, its adjectival suffix has been restricted. According to OED, “it is only in a few cases (e.g. *wooden*, *woollen*, *earthen*, *wheaten*) that these words are still familiarly used in their literal sense” (*OED*, s.v. *-en* (*suffix*$_4$)). It is further stated that “from 16th century onwards there has been in literary English a growing tendency to discard these adjectives for the attributive use of the noun, as in ‘a gold watch’; hence many of them have become wholly *obsolete*, and others (as *golden*, *silvern*) are seldom used except metaphorically, or with rhetorical emphasis” (*OED* s.v. *-en* (*suffix*$_4$)).

There are actually limited uses of the suffix *-en* in English. Let us observe examples such as those in (56).

(56) a. Diminutive use: *chicken*, *kitten*, *maiden*

b. Feminine use: *vixen* ‘female fox’

c. Plural use: *brethren*, *children*, *oxen*

d. Verbal use: *darken*, *deepen*, *harden*, *madden*, *moisten* [V < A]

listen, *happen*, *threaten*, *heighten*, *lengthen* [V < N]

(*OED*, s.v. *-en* (*suffix1–6*))

The above instances of *-en* suffixation are all considered to function as retaining its inflectional status, but they are very limited in Present-day English. Bauer et al. (2013: 304) also explain that the suffixes *-en* and *-ern* (a variant of *-en*) are “no longer productive” (cf. *-ern*; *eastern*, *northern*, *southern*, *western* (*OED*, s.v. *-ern*)). On the other hand, *-ed* “has been productive at all times, chiefly with concrete, less often with abstract substantives” (Marchand (1969: 264)). Therefore, in terms of the productivity, we can say that *-ed* has always been so productive that it retains its inflectional status for nouns. However, since *-en* has already been unproductive, its morphological status for nouns varies between inflectional and derivational in some cases.

Again, although the DAs formed with *-en* are quite limited in Present-day English, they are still productive in some English dialects such as the southern and south-western areas in Britain (Wright (1968: 266), Marchand (1969), *OED*, s.v. *-en* (*suffix*$_4$)). In these areas, for instance, expressions such as *tinnen pots* and *glassen bottles* are still used (cf. *tinnen* < *tin*, *glassen* < *glass*, *steelen* < *steel*, *papern* < *paper*).

This kind of inflectional suffixes survives in other areas as well (Wright (1968: 266–267)). For instance, in Somerset and Devon, *halfendeal* ‘a moiety’, which derives from *healfan dǽl* in OE, is still used. In Shetland Isles, Inverness, west Scotland, Renfrew, and Wigtown, *samen* ‘same’ survives.

These facts are suggestive enough to claim that the *-en* suffix may retain its inflectional

status even in Present-day English. We thus argue that the suffix *-en*, in some cases and for some speakers, behaves like the inflected word-type (i.e. *-en* adjectives exhibit the BNMP). Importantly, both morphological and diachronic perspectives of the suffix in question seem to concur with Nikolaeva and Spencer's (2020) argument about the morphological declension in English. Thus, we contend that the suffix *-en* has been in transition from inflectional to derivational.

5.4.2.2. Territorial Asymmetry of Inflectional Elements and Derivational Elements

We should next explain whether or not the origins of suffixes really affect the distinction between derivation and inflection in word-formation. In the previous sections, we have said that whether the elements in question are [+Latinate] (i.e. Romance origin) or [–Latinate] (i.e. Germanic origin) influence the output words as derivatives or inflected ones. Specifically, when nouns are attached with [+Latinate] suffixes (e.g. RA forming suffixes such as *-al*, *-ic*, and *-ary*), they generally yield derivatives, whereas when nouns attached with [–Latinate] (e.g. native suffixes such as *-ed* and *-en* in some cases), they create inflected words. The former do not represent the BNMP, while the latter do so. This is also true in the case of qualitative adjectives (QAs). Some [–Latinate] suffixes such as *-ish* in (57a) and *-y* in (58a) show the BNMP. Moreover, they can be attached to the phrasal bases, as shown in (57b) and (58b) respectively.

(57) *-ish*

a. homeboyish, punk-rockish, show-offish, trailer-parkish [compounds]

b. dog-in-the-mangerish, feelgoodish, up-your-buttish [phrases]

(58) *-y*

a. hot-tubby, piss-stinky, woodworky [compounds]

b. secret-agenty [phrases]

(Bauer et al. (2013 305))

However, the [–Latinate] suffix *-ful* of *beautiful* may not be the case, since it yields a true derivative. For instance, *natural beauty landscape* may mean 'the landscape which has natural beauty', whereas *natural beautiful landscape* may only mean 'the landscape which is natural and beautiful'. Therefore, even though the suffix *-ful* is [–Latinate], it does not exhibit the BNMP.

We have thus obtained the fact that the [–Latinate] suffix can create true derivatives in some cases. In other words, inflectional elements can get into the territory of derivation, but the converse does not hold; namely, derivational elements in general cannot get into the territory of inflection (cf. ten Hacken (1994)). This morphological territorial asymmetry can be explained by *borrowability* (cf. Muysken (2008)). As discussed by Muysken (2008: 177), it is possible to formulate constraints on the process of borrowing. The ordering of lexical categories in (59) is borrowability hierarchies, which can be implicational universals of borrowing.

(59) nouns > adjectives > verbs > coordinating conjunctions > adpositions > quantifiers > determiners > free pronouns > clitic pronouns > subordinating conjunctions

(Muysken (2008: 177))

In (59), lexical categories are more easily borrowable rather than functional categories. As argued by Muysken (2008: 187), the borrowability of "the functional categories associated with the syntactic skeleton, like tense, agreement, and case" is very limited. This can be recaptured

as follows. The suffixes (i.e. a kind of functional category) via the borrowing process can only work as derivational elements in the derivational territory. This indicates that RA forming suffixes (e.g. *-al*, *-ic*, and *-ary*) as 'borrowed elements' only play a role of yielding derivatives but not inflected words (cf. Nagano (2018c: Ch. 4), Myers-Scotton (2002: 241)).

The relevant discussion can be applied to nominal gerunds, a type of DN, as shown in (61). In comparison to verbal gerunds as observed in (60) (see also (41)), the properties of nominal gerunds in (61) are perfectly parallel to those of the CEN as in (42) and (43).

(60) Verbal Gerunds

a. Harriet's writing the article so quickly (Spencer (2018: 265))

b. (We were surprised at) {Tom's / his} burning the letter (= (31c))

(61) Nominal Gerunds

a. The shooting of rabbits is illegal.

b. * {A / One / That} shooting of rabbits is illegal.

c. * The shootings of rabbits are illegal.

d. * That was the shooting of rabbits.

(Grimshaw (1990: 56))

Nominal gerunds do not take direct objects, allow only definite determiner, never pluralise, and never occur predicatively (Grimshaw (1990: 56)). Thus, we can apply the same analysis of DAs to DNs. The [–Latinate] suffix *-ing* can both get into the territory of inflection and derivation, whereas the [+Latinate] suffixes (e.g. *-ment*, *-ation*; borrowed elements) cannot get into the inflectional territory.

5.4.3. Summary

In this section, we have recaptured Nikolaeva and Spencer's (2020) arguments about different types of DAs in terms of the Construction Grammar theory. The two types of DAs (i.e. the derivative-type and the inflected word-type) can be regarded as the Adjectival construction and the Nominal construction, respectively. Although both constructions may overlap in some points within the constructional network (i.e. schema), they actually establish their constructional statuses as different classes. Domain modifiers such as *tidal* and *prepositional* are regarded as establishing independent constructions from the base nouns (i.e. *tidal* is morpholexically different from its base noun *tide*); hence, a type of 'true' Adjectival construction, whereas those such as *eyed* and *pointed* are simply paradigmatic in relation to the base nouns (i.e. *eyed* is morpholexically the same as its base noun *eye*); hence, a type of Nominal construction. The difference between them can be captured by the BNMP criterion. We have further pointed out that the origins of suffixes are significantly concerned with the word-formation process of domain modifiers.

The generalisation that we have made is that [+Latinate] suffixes can only be used at a derivation level, whereas [–Latinate] suffixes can be used both at an inflection level and derivation level. However, we have faced the problematic RA forming suffix *-en*. Although this suffix is [–Latinate], it generally does not show the BNMP. The reason for this can be explained by the effects of both its morphological status and its diachronic change. We have discussed this by adducing some important facts in deverbal nominalisations. Therefore, the word-formation process of DAs can be considered parallel to that of DNs.

5.5. Categorial and Constructional Properties of Adjectives

In fact, we have not yet clarified the constructional relationship between the predicating modifier construction and the domain modifier construction. Through the investigation, we will

further explore how we should understand the category 'Adjective' (cf. *adjectivehood*). In this section, we will examine the properties of adjectives and their categorial statuses, focussing particularly on domain modifiers (i.e. DAs). Following Croft's (2001) and Nikolaeva and Spencer's (2020) discussions, we will carefully observe the categorially mixed modifiers (i.e. DAs) in English. By exploring what adjectives are, we will provide some possible views of how we can understand the category Adjective.

5.5.1. Word Classes and Syntactic Functions

Recall that the function of domain modifiers is to subcategorise the type of a head noun. Domain modifiers in English that we have studied so far do not include a class of predicating adjectives (cf. qualitative adjectives (QAs)), but relational adjectives (RAs) as typical examples. RAs in English considerably inherit more nominal properties than QAs, as illustrated in Chapter 4. Thus, the formal properties of RAs (e.g. noun modification) are adjective-like, but at the same time, their intrinsic characteristics are just like nouns. Put differently, RAs are 'externally' adjectives but 'internally' nouns, though RAs and nouns are constructionally (cf. or morpholexically) different from each other.

In terms of domain modifiers, such a categorially mixed property of RAs leads us to raise the following question: how are the categorial properties of adjectives and nouns related to each other in RAs? Put more simply, how can we determine the category of RA? In order to answer the question, we should first set up the way of capturing the so-called *category*, *parts of speech*, or *word classes* (cf. Chomsky (1981), Langacker (1987), Baker (2003), Croft (2001), Baker and Croft (2017), Nikolaeva and Spencer (2020), to name but a few). This chapter employs a 'non-discreteness hypothesis' (Sasse (1993, 2001)). It allows us to regard word classes as being overlapping and as having no clear-cut boundaries. As argued by Nikolaeva and Spencer (2020: 16), "categoriality is gradient and sensitive to different kinds of cross-cutting information which

can vary independently, so categorial mixture does not present a conceptual problem". For example, Croft (1991, 2000, 2001) has developed and extended this idea.

Croft (2001) claims that word classes are determined by the parings of prototypical semantic types and grammatical constructions (i.e. syntactic representation).[16] Semantic types are *objects*, *properties*, and *actions*, which largely correspond to the ontological types of *thing*, *property*, and *event* in Jackendoff's (1990) theory of Lexical Conceptual Structure. These semantic categories are schematically depicted in Table 5.5.

Table 5.5. Semantic properties of prototypical word classes

	Relationality	Stativity	Transitoriness	Gradability
Objects	non-relational	state	permanent	non-gradable
Properties	relational	state	permanent	gradable
Actions	relational	process	transitory	non-gradable

(cf. Croft (2001: 87), Nikolaeva and Spencer (2020: 17))

Grammatical constructions, called 'propositional act functions' in Croft (1991, 2001), are divided into three types of primitive units of syntactic representation: *reference*, *modification*, and *predication*. Each is defined by Sasse (1993) as follows.

(62) a. Reference:

that operation which enables us to speak about specific objects. It is a deictic act, whereby one points to a particular object by means of an expression which names

[16] Notice that the term 'category' here differs from what has been traditionally called 'syntactic' categories. Syntactic categories are generally based on the feature-based system (e.g. binary features; [±N, ±V]). This kind of approach regards words as belonging to a single category "if and only if they share the same set of properties identified on formal grounds" (Nikolaeva and Spencer (2020: 10)). That is, it neither admits notion-based approaches nor recognises the idea of gradient word class membership.

that object in such a way that it can be conceived as an individual.

b. Modification (cf. attribution):

that operation by which we can combine concepts into more specifically modified ones.

c. Predication:

that operation which allows a proposition to assume a self-contained linguistic form, a sentence. By the act of predication we posit the existence of a state of affairs.

(Sasse (1993: 653))

The three prototypical categories are associated with relevant constructions. Therefore, object words serve for reference, property words serve for modification, and action words serve for predication. Non-prototypical pairings of semantic types and constructions can also appear in languages, but in that case, they are "structurally and behaviourally marked" (Nikolaeva and Spencer (2020: 37)). The word classes discussed so far can be summarised and represented in Table 5.6 below.

Table 5.6. Major word classes and syntactic functions in English

	Reference	Modification	Predication
Objects	**Nouns** John likes *cars*	**NPs or PPs within NPs** (e.g. genitive NP) the man *with a car* *the car's* window	**Predicate nominals** (often with copula) This is *a car*
Properties	**Deadjectival nouns** *smallness*	**Adjectives** the *small* car	**Predicate adjectives** (often with copula) The car is *small*
Actions	**Action nominals, gerunds, complements, infinitives** *the crashing of the car* *NP('s) crashing the car* *that NP crashed the car* *to crash the car*	**Participles, relative clauses** the *crashed* car the car *that crashed*	**Verbs** The car *crashed*

(cf. Croft (2001: 88, 2003: 185, 187–188), Nikolaeva and Spencer (2020: 18))

The grey zones in Table 5.6 represent the prototypical syntactic functions of the semantic classes on the left vertical line (i.e. *objects*, *properties*, *actions*); namely, the prototype of reference construction is attributed to object words (i.e. Noun), that of modification construction is property words (i.e. Adjective), and that of predication construction is action words (i.e. Verb). Capturing word classes in this way, we recognise that the classes themselves are not categories of individual grammars but can be "universal categories whose prototypical status is independent of any language-particular requirements" (Nikolaeva and Spencer (2020: 17)). Thus, a certain lexical item may belong to word class X in one construction and to class Y in another construction. We then notice that such questions in (63) may be inappropriate for capturing linguistic categories because they postulate a certain clear-cut categorial distinction.

(63) a. What category does word W belong to?

b. Does language L have adjectives?

(Nikolaeva and Spencer (2020: 18))

As explained by Nikolaeva and Spencer (2020: 18), since there may be some cases where "a word can inherit its categorial information from several classes simultaneously and many different types of categorial mixture can arise", it is not always useful and effective to regard words as belonging to "immutable category labels". Instead of asking the questions in (63), they can be rephrased, as in (64).

(64) a. To what extent do {object / property / action}-denoting words in language L have formal features that distinguish them from other sets of lexical items?

b. And if they have these features, in which constructions are they manifested?

(cf. Nikolaeva and Spencer (2020: 18))

Croft's view of lexical categories is thus based on the prototypicality of word classes and constructional patterns. However, following Nikolaeva and Spencer (2020), this thesis does not use the notion of 'prototypical categories' but the concept of 'canonical categories' (cf. Corbett (2006, 2007)). Prototypical categories vary from scholar to scholar (e.g. according to frequency in use). That is, linguists are free to select one of the existing characterisations or define them on their own; namely, a prototype is determined *inductively*, so to speak. In contrast, canonical categories are based on canonical criteria, which are at least indisputable since they are relatively determined in comparison to standards or norms; namely, a canonical property is determined *deductively*, so to speak. Further, it is actually difficult to say what a prototypical noun, adjective, or verb would be. If we imagine a certain prototype of each main lexical category,

we have to think of a specific word in some specific language. Therefore, we will take a 'canonical' approach for capturing the system of lexical categories (cf. Spencer (2005, 2013)).

In the canonical approach, Nikolaeva and Spencer (2020: 20) claim that "all the properties converge on a single category", and they employ the principle of what Spencer (2005) refers to as 'Morpholexically Coherent Lexical Entry', as represented in (65).

(65) Principle of the Morpholexically Coherent Lexicon

a. All syntactic classes correspond to uniquely characterised morphological classes and vice versa.

b. All semantic classes correspond to uniquely characterised morphological classes and vice versa.

c. All syntactic classes correspond to uniquely characterised semantic classes and vice versa.

(Nikolaeva and Spencer (2020: 21))

On this basis, as explained by Nikolaeva and Spencer (2020: 20), "the more canonical properties a word exhibits, the more likely we are to achieve a consensus in labelling it". However, a word can deviate from canonicity to some extent.[17] This inevitably allows us to recognise what is at issue in the present topic; namely, DAs as mixed categories (e.g. *-ed* adjectives in English and RAs in other languages). To take another example, the past tense of a Russian verb morphologically realises (and has the agreement properties) as a predicative adjective rather than that of a finite verb (Nikolaeva and Spencer (2020: 21)). Morpholexical incoherence thus

[17] As explained by Nikolaeva and Spencer (2020: 21), "there is a tendency to find the greatest variation in the expression of semantics: there are innumerable exceptions to the canonical semantics-to-structure mappings which are thus (mildly) incoherent". This does not indicate that the semantic/notional basis of word categorization is invalid but that there are a number of deviations between semantics and syntax.

generally arises from two sources. In other words, a word that represents certain mixed properties inherits different categorial properties (i.e. default inheritance). This kind of idea is extended and developed by the concept of 'Lexical Relatedness' by Spencer (2005, 2013).

5.5.2. Constructional Network of Adjectives as Modifiers

We are now in a position to define the canonical properties of adjectives. Following Croft's (2001) and Nikoleva and Spencer's (2020) arguments, this section stipulates main lexical categories as shown in Table 5.7.

Table 5.7. Canonical properties of lexical categories

Semantics / Ontology
● Canonical Nouns denote (countable physical) objects
● Canonical Adjectives denote (physical, directly perceptible) properties
● Canonical Verbs denote actions and situations
Syntax / Distribution
● Canonical Nouns head phrases denoting arguments of predicates
● Canonical Adjectives head phrases used as attributive modifiers
● Canonical Verbs head phrases used as predicates

(Nikolaeva and Spencer (2020: 20))

Concerning canonical adjectives, crucial and canonical essences are 'property-denoting' and 'attributive modification'. Moreover, we regard canonical adjectives as being words denoting some 'gradable' concepts (Nikolaeva and Spencer (2020: 20)). As discussed in Chapter 2, predicating adjectives such as *bright*, *large*, *small*, and *beautiful* are gradable when they are interpreted in an intersective manner. On the other hand, subsective adjectives such as RAs,

alleged, privative adjectives like *fake*, and modal adjectives like *former* lack gradability. Dixon (1982) claims that the following adjectives are typical ones that express gradable meanings.

(66) a. Dimension: *big*, *small*, *narrow*, *thick*, *fat*

b. Physical property: *hard*, *heavy*, *rough*, *smooth*, *hot*, *sour*

c. Colour:[18] *black*, *white*, *red*

d. Human propensity: *happy*, *kind*, *cruel*, *rude*, *proud*, *wicked*

e. Age: *new*, *young*, *old*

f. Value: *good*, *bad*, *fine*, *delicious*

g. Speed: *slow*, *fast*, *quick*

(Dixon (1982: 16), cf. Nikolaeva and Spencer (2020: 43))

Based on his close survey on many different languages, Dixon (1982) claims that these meanings must be attributed to adjectives as a distinct category.

On the basis of Dixon's (1982) examination, Nikolaeva and Spencer (2012, 2020) specify other canonical semantic properties and syntactic properties of adjectives as provided in (67) and (68), and regard such adjectives as having the following properties as canonical ones.

[18] Nikolaeva and Spencer (2020: 44) clearly mention that they "do not take colour terms to represent a prototypical property attribute". The reason is as follows: (i) colour terms sometimes are not gradable; (ii) they behave differently from other attributes. For instance, the following examples as shown in (i) are observed in archaic or poetic contexts, whereas those constructions with non-colour terms as represented in (ii) are unacceptable through the grammaticalization from nouns.

(i) a. a sky of blue
b. a coat of green
c. a wine of deepest red

(ii) a. * a sky of bright
b. * a coat of warm
c. * a wine of (sticky) sweet

See Kennedy and McNally (2010) for detailed discussion.

(67) Semantics

a. Modifiers denote gradable property concepts and hence are one-place predicates

b. The modified word denotes a physical object

b. Modification is intersective

(68) Syntax

a. Modifiers are adjectives

b. The modified noun is a noun

c. The modified word is the semantic and syntactic lexical head of the construction

d. Modifiers are direct adjuncts to noun heads

e. Modifiers do not take specifiers and other attributive modifiers

(Nikolaeva and Spencer (2020: 46))

Both semantic and syntactic properties are important to define canonical adjectives when we think of them in general.

If we apply these criteria to our two types of modificational constructions, the predicating modifier construction seems to satisfy more of them than the domain modifier construction, since it has a property-denoting (i.e. predicating) characteristic as a meaning side and an attributive use as a formal side. The predicating modifier construction can be illustrated as in (69).

(69) < Predicating Modifier Construction >

a. Form: {[A-N] / [N *be* A]}

b. Meaning: [PROPERTY-denoting] (cf. predicating)

Notice that the construction has a corresponding predicative construction (i.e. N *be* A). This construction can be formed only when the modifiers are true adjectival predicates. In this sense,

domain modifiers in predicate position are ruled out, since they retain their domain-identifying function even in predicate position (see the detailed discussion in Chapter 4). In other words, domain modifiers are not adjectival predicates but formally adjusted attributive modifiers (i.e. RAs).

Accordingly, we obtain the consequence that the domain modifier construction deviates from the canonical pattern of noun modification by adjectives. The canonical constructional property of adjectives in noun modification is predicating (i.e. property-denoting) but not subcategorising (i.e. type-identifying). Then, how can the properties of domain modifiers be captured?

In the domain modifier construction, as pointed out by Sullivan (2013: §5.4), the supposed modifiers include not only adjectives such as RAs but also nouns (cf. the first noun in N-N modification can be regarded as a type of domain modifier). On the basis of the discussions so far, we further claim that domain modifiers include other categories and grammatical elements, as listed in (70).

(70) Other Possible Domain Modifiers

a.	Noun:	e.g. *divorce lawyer*, *apple pie*
b.	Active participle:	e.g. *dancing girls*, *laughing children*
c.	Passive participle:	e.g. *stolen property*, *baked potatoes*
d.	Adverb:	e.g. *the then ruler*, *fast acceleration*
e.	Compound adjective:	e.g. *fish-eating dinosaurs*, *home-cooked meals*
f.	Expletive:	e.g. *those goddam kids*, *that blasted bus*
g.	Numeral:	e.g. *the seven dwarfs*, *the third estate*
h.	Phrasal:	e.g. *a call-it-what-you-like-but-I-call-it-chutzpah attitude*

(cf. Levi (1978: 57))

The categorial heterogeneity in (70) indicates that a 'syntactic' adjectival status is actually pervasive in almost all categories. Thus, all the attributive modifiers in (70) are obviously not genuine canonical adjectives, but some of their forms are adjusted as prenominal modifiers (e.g. *dancing* (V-*ing*) < *dance* (V), hyphenation). On this basis, the domain modifier construction can be shown, as in (71).

(71) < Domain Modifier Construction >

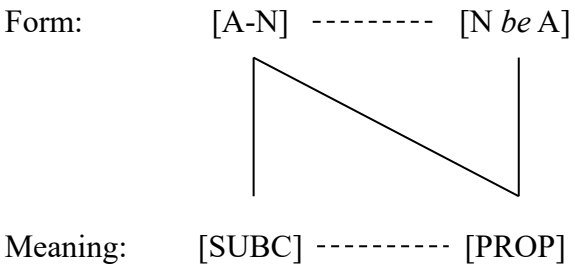
a. Form: [A-N]

b. Meaning: [SUBCATEGORISING] (cf. type-identifying)

The construction can only have the attributive form and its meaning is subcategorising or relating to the type of the head noun (cf. regarding RAs as domain modifiers, the specific meaning in the construction is 'object-denoting', whereas deverbal adjectives such as participles indicate 'action-denoting'). Not only adjectives but also other lexical categories and grammatical elements can be inputs for this construction. Thus, this construction is not exclusive to the category of adjectives but accommodates many kinds of categories that are required to become attributive modifiers due to the syntactic function.

By identifying the canonical properties of adjectives, we have clarified in what ways domain modifiers differ from predicating modifiers. The domain modifier construction requires only formally adjusted adjectives as its inputs. In other words, the construction is genuinely formal and exists independently from the distinct word classes (i.e. lexical categories). Along these lines, we can illustrate how the form and meaning are related to each other in noun modification by adjectives, as in (72).

(72) The Form-Meaning Relation in Noun Modification by Adjectives



The canonical adjectival properties are thus the combination of attributive form (i.e. [A-N]) and property-denoting meaning (cf. 'direct intersective modifiers', Nikolaeva and Spencer (2020: 45)). This meaning property can also be expressed by another form, adjectives in predicate position (i.e. [N *be* A]). On the other hand, the form property can also be combined with the meaning of subcategorising.

The above discussion further leads us to examine the constructional relationships between the relevant A-N constructions. Figure 5.4 below briefly illustrates the internal structures (i.e. form-meaning pairings) of the two types of A-N constructions (i.e. the domain modifier construction and the predicating modifier constructions) and how the blended domain modifier construction, which has been defined as a third type of adjective construction in Chapter 3, is formed.

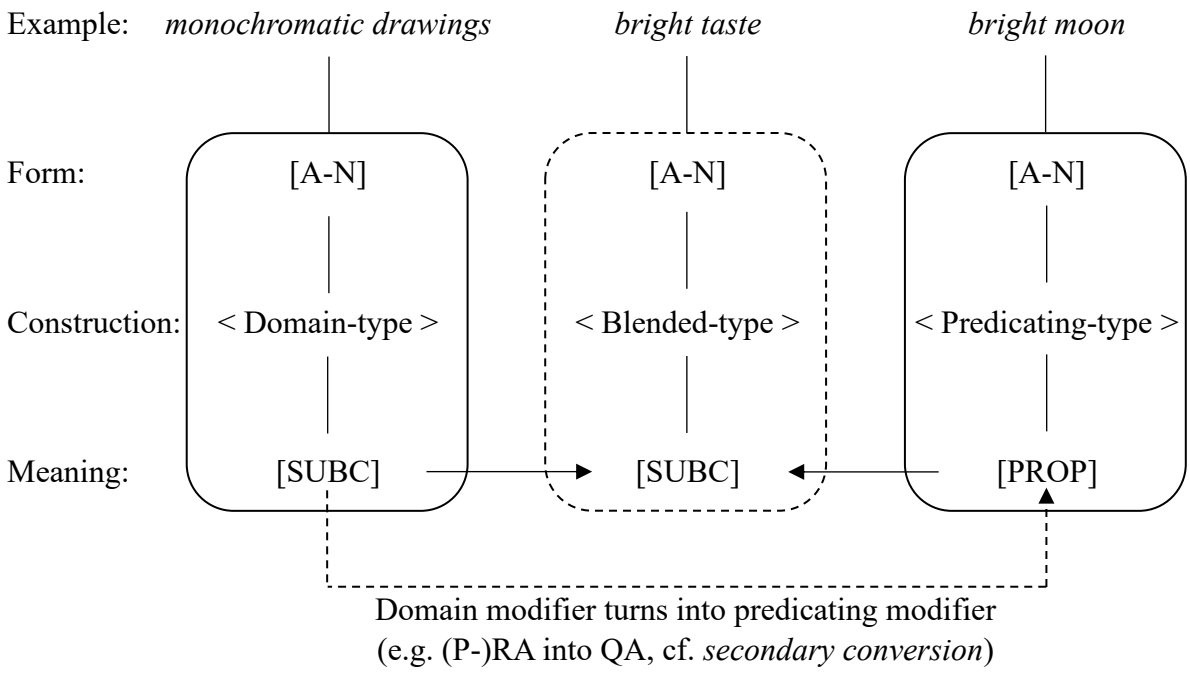


Figure 5.4. Three types of constructions and their form-meaning relations

In the first place, although the adjectival statuses are different, the form [A-N] is shared amongst the three types of constructions. As indicated by both left and right solid-line squares, there are two types of A-N constructions (i.e. <Domain-type> and <Predicating-type>). They stand for the domain modifier construction (e.g. *monochromatic drawings*) and the predicating modifier construction (e.g. *bright moon*), respectively. I regard them as 'basic' or 'default' A-N constructions. Then, the dotted-line square in the middle position represents the internal structure of the blended domain modifier construction (i.e. <Blended-type>); however, it appears idiosyncratic, since its form and meaning structures are literally 'blended', as indicated by each arrow (e.g. *bright taste*; its original structure is that of the predicating modifier construction (i.e. PROPERTY-denoting), while its interpretive structure is that of the domain modifier construction (i.e. [SUBCATEGORISING])). Importantly, as argued in Chapter 3, unless this A-N construction is highly conventionalised (e.g. *sick room*), it is formed at an interpretive level (i.e. formed 'online'), as designated by the dotted-line square. Furthermore, notice that the arrow

extended from [SUBC] in <Domain-type> to [PROP] in <Predicating-type> under the constructions indicates so-called *secondary conversion* (e.g. *monochromatic*; P-RA 'having one colour' into QA 'drab, unvarying') (see detailed discussion in Nagano (2018a, b)). In this way, we can draw a whole picture of noun modification by adjectives including some peculiar phenomena. Some other remaining but peripheral issues will be dealt with in Chapter 6.

5.6. Theoretical Implications

The well-known Construction Grammar approach to morphology is Construction Morphology (cf. Booij (2010)). We have not specifically introduced the theory in this thesis because our main target is not only the complex lexical items but also the set of lexical items (e.g. A-N, N-N) and their relations (i.e. modifier-head relation). This section will not discuss the theory of Construction Morphology itself but attempt to develop our discussion in relation to one of the morphological theories, word-based morphology, providing some theoretical implications for the theory.

There are two mainstream approaches to complex lexical items and their parts: *morpheme-based* and *word-based*. Morpheme-based approaches deal with complex words as 'concatenations of morphemes', whereby every singly morpheme is regarded as a lexical entry of its own (see Lieber (1992), cf. Distributed Morphology, Halle and Marantz (1993)). For example, in this approach, the complex word *friends* consists of the combination of the base *friend* and the plural suffix *-s* (i.e. *friends* = *friend* + *-s*).

In contrast, word-based approaches regard the word, not the morpheme, as the smallest lexical entry (cf. Word-and-Paradigm theories of morphology, Blevins et al. (2019)). In the approach, *friends* is one form of the lexeme FRIEND. Therefore, the form *friends* is a paradigm of FRIEND. Here, the term *lexeme* is an abstract notion, which is composed of a set of systematic correspondences between the forms and meanings in a language. The construction grammar

approaches to morphology, too, are a type of word-based theory. Complex words can be schematically represented as items stored in their entirety including the same types of properties of simplex words and internal morphosyntactic structure, as depicted in Figure 5.5.

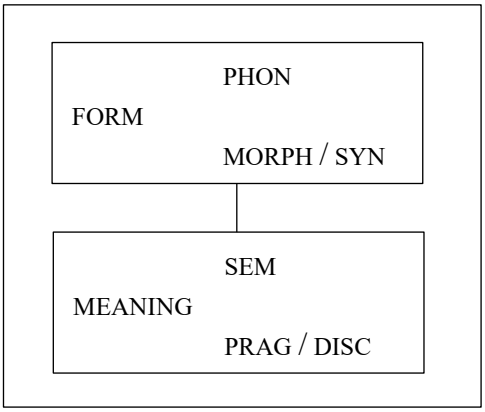


Figure 5.5. The internal structure of construction

Thus, as explained by Masini and Audring (2019: 369), affixes like *-s* in *friends* "are not stored on their own and do not have an independent meaning outside the structure they occur in". This view is the same as what we have analysed in this chapter (i.e. *-en* adjectives).

As illustrated in Figure 5.5, constructions are pairings of the form and meaning. A number of specific constructional schemas based on Figure 5.5 appear to have generative power like Word Formation Rules (WFRs, cf. Aronoff (1976))). But, schemas and WFRs differ from each other in some points. First, WFRs are "procedural and imply productivity by default", whereas constructional schemas are "primarily declarative: they are static generalisations over a set of fully specified items" (Masini and Audring (2019: 369)). Constructional schemas can thus avoid over-generating non-existing words and word-forms. Second, WFRs are input-oriented while schemas are output-oriented. The former always derive from the input based on many kinds of operations, whereas the latter can deal with non-concatenative phenomena such as prosodic, templatic, or subtractive morphology.

However, when we focus more upon the internal structure of schemas, we can notice that the form and meaning are respectively individuated as distinct properties. Both properties themselves are composed of a number of schemas and principles, and systematically connected to each other, though they are stored in the same repository, so-called *construct-i-con* (cf. mental lexicon).

Such a view is significant for the present topic (i.e. noun modification by adjectives) in particular. The forms of domain modifiers are quite sensitive to morpholexical features and word-formation processes, as investigated in this chapter. For example, there are two types of domain modifiers (i.e. the Adjectival construction (cf. the derivative-type) and the Nominal construction (cf. the inflected word-type) based on whether or not they exhibit syntagmatic category mixing (i.e. the BNMP, cf. Lexical integrity). It is argued that the target derived modifier in noun modification is constructionally (cf. morpholexically) 'one form' of the base noun construction (i.e. *-ed* adjectives and RAs in other languages) or 'distinct construction' from the base noun construction (i.e. RAs in English).

The constructional approach to both A-N constructions and the categorial status of adjectives is, thus, very analogous to the theory of word (lexeme)-based morphology (cf. Spencer (2013), Spencer and Nikolaeva (2017), Blevins et al. (2019), Nikolaeva and Spencer (2020), Nishiyama and Nagano (2020)). Our analysis in this chapter thus seems to concur with word-based morphology in many respects.

5.7. Summary of Chapter 5

In this chapter, we have discussed the constructional properties of adjectives in noun modification and clarified their relationships within the constructional network. The important point that we have pointed out is the independency of the form and meaning in a construction. This implies that even constructions can be regarded as compositional units in some cases. The

category adjective is the best example of this.

Domain modifiers including different categorial and grammatical elements consist of complex morphological rules. The RA-N construction, for example, has long been said to have the same meaning as the N-N construction (e.g. *industrial output* vs. *industry output*). The apparent nominal properties of English RAs give us an impression that RAs are nominals. However, they are constructionally (cf. morpholexically) different from their base nouns (i.e. RAs in English belong to the class of adjectives). By contrast, RAs in other languages such as Uralic and Evenki are part of the paradigm of the base nouns (i.e. RAs in these languages belong to the class of nouns). English *-ed* adjectives can be attributed to this type, which, as we have argued, is accounted for in terms of the origins of suffixes and their diachronic changes. The discussion has been further strengthened by the parallel behaviour of DNs.

Furthermore, by defining the canonical categorial status of adjective, we have illustrated the entire constructional relationships of noun modification by adjectives. Such an attempt seems to correspond to what the theory of word-based morphology has clarified. The relevant discussion thus provides important theoretical implications for the field of morphology.

Chapter 6

Related Issues and Possible Explanations

6.1. Introduction

In this chapter, we will take up other related issues in noun modification by adjectives and provide possible explanations for each. The issues focussed on in this chapter seem somewhat peripheral in comparison to what we have analysed through the previous chapters, but we will touch on them because of their interesting characteristics. Through the discussion, we may find other significant factors underlying the general principle of noun modification by adjectives.

The first issue is the semantics of some classes of nominals in English (e.g. N-N, Deverbal nominalisation, RA-N), which will be taken up in Section 6.2. We will explore what the semantic principle, or more specifically, what kind of 'semantic predicates' are involved in regulating the composition of nominals. On the basis of the pertinent literature, we will attempt to integrate some specific semantic predicates into the more fundamental predicates. Through the discussion, we will propose that the word-level semantics can be reduced to the sentence-level semantics.

Second, we will discuss in Section 6.3 a kind of marked expression, so-called synaesthetic expressions. As treated deeply in Chapter 3, such expressions like *bright taste* are known as linguistic synaesthesia, which has been recognised as an idiosyncratic phenomenon in that the modifier and head individually denote different sensory modalities (i.e. *bright* (vision) *taste* (gustatory)). Interestingly, it has been pointed out that there is a hierarchy in our five senses (i.e. touch, taste, smell, vision, sound) and the sensory mapping amongst them is 'unidirectional'. We will explore how synaesthetic modification is associated with the directionality.

Third, we will deal with a class of adjectival compounds in English and Japanese (e.g. N-A compounds) in Section 6.4. There are two types of relationship between the constituents (e.g.

argumental and non-argumental). The non-argumental adjectival compounds are basically interpreted in a similative manner (i.e. A *like* N). However, in this case, we will point out that there is a realisational difference between English and Japanese. We will discuss this in relation to the referring expressions in both languages.

At the end of the chapter, in Section 6.5, we will summarise the discussions and further raise some other problems that should be tackled within our framework. However, we will not attempt to provide answers to these problems there, simply pointing out what kinds of issues still remain.

6.2. The Semantics of Complex Nominals in English[1]

This section discusses the semantic relations between the constituents of nominal expressions. The discussion will be based on Levi's (1975, 1978) influential work on nominals. We will point out that her semantic analysis can be reduced to Gunkel and Zifonun's (2008) and Nakau's (1994) semantic analyses. Levi (1975, 1978) claims that nine specific predicates are crucially involved in the relevant class of nominals, but we propose that these predicates can be reduced to only three types of predicates. From a Construction Grammar point of view, such a consequence can naturally be captured by the inheritance link. By making this proposal, we are led to the fact that the word-level semantics is explainable from the sentence-level semantics.

6.2.1. Levi' s (1975, 1978) Nine Recoverably Deletable Predicates

Levi (1975, 1978) regards the following three types of nominals, which she calls *Complex Nominals* (hereafter, CNs), as the same class because they can be grouped by their partially overlapping properties.

[1] This section is a revised and extended version of Ishida (2019c).

(1) Complex Nominals

a. apple cake, time bomb, autumn rains, surface tension

b. American attack, city planner, musical criticism

c. electric clock, electrical engineering, musical criticism[2]

(Levi (1978: 1–2))

Specifically, the nominals in (1a) are called 'nominal compounds' (i.e. head nouns are not nominalised), those in (1b) are 'nominalisations' (head nouns are nominalised), and those in (1c) are 'noun phrases with relational adjectives (RAs)'. In general, CNs refer to a type of nominal constructions in which "a head noun is preceded by a modifying element that is either a noun or a RAdj [relational adjectives]" (Shimada and Nagano (2018: 67)).

Levi (1975, 1978) focuses particularly on *endocentric* CNs,[3] that is, "those CNs whose referents constitute a subset of the set of objects denoted by the head noun" (1978: 6) and attempts to elaborate a theory of the "productive processes that generate complex nominals" (1978: 8). For example, the CN *horse doctor* (N-N compound) in (2) is interesting in that it has several possible readings.

(2) horse doctor

a. 'doctor for horses' (cf. tree doctor)

b. 'doctor who is a horse' (cf. woman doctor)

[2] The CN *musical criticism* is listed in both (1b) and (1c). This indicates that some CNs are considered not only as the resultants of nominalisation but also as merely RA-N expressions.

[3] As claimed by Levi (1978: §1.3), the following four types of nominals should be excluded due to their creative, idiosyncratic, conventionalised, and lexicalised properties: (i) exocentric CNs (e.g. *ladyfinger* (metaphorical), *birdbrain* (synecdochical), *speaker-listener* (coordinative)); (ii) proper nouns that resemble CNs in form (e.g. *Istanbul Hotel*, *Parisian Café*); (iii) CNs that must be derived from underlying adverbs (e.g. *potential enemy*, *early riser*); and (iv) lexicalised CNs (e.g. *ball park*, *eggplant*). Bauer and Tarasova (2013) also focus on endocentric compounds and discuss them in a different way (see also Tarasova (2013)).

c. ‘doctor that has horses’ (cf. peg leg doctor)

d. ‘doctor that uses horses’ (cf. voodoo doctor)

(Levi (1978: 9))

The CN is normally used with the meaning of (2a), which is semantically parallel with *tree doctor* (‘doctor for trees’, viz. arborist). It could, however, have the other meanings exemplified in (2b-d). This highly variable interpretation of CNs, particularly N-N compounds, has also been pointed out and discussed differently by many scholars such as Hatcher (1960), Downing (1977), Ryder (1994), and Plag (2003).

However, due to its interpretive flexibility, it seems still difficult to define a general semantic principle regulating CNs. To give an answer to this, Levi (1975, 1978) uses the generative semantic framework. In what follows, we will first overview Levi’s accounts of CNs. We then introduce Nakau’s (1994) tripartite theory of predicates and Gunkel and Zifonun’s (2008) analysis of deverbal nominalisation. On the basis of these discussions, we claim that such multiple readings of CNs as in (2) result from a more basic sentence-level predication system. This implies that there is a similar cognitive-semantic mechanism between words and sentences; namely, the sentence predication is in fact reflected in word-formation.

Let us first introduce how Levi (1975, 1978) elucidates the derivational processes of CNs. It has been widely acknowledged that Levi’s transformational analysis is a remarkable attempt to clarify the semantic relations between the constituents of CNs and to reveal how CNs are derived. Specifically, the following two points are important in her generative semantic account: (i) RAs originate in nouns; and (ii) CNs are derived from only nine recoverable predicates. Since the first point has already been confirmed in the previous chapters, we will not touch on it here (see Chapters 4 and 5).[4]

[4] Levi (1978: 19) shows that the nominal properties can be listed as follows (cf. Bisetto (2010)).

Regarding the second point, Levi (1975, 1978) proposes that CNs are derived mainly by the syntactic derivational process, called *predicate deletion*.[5] Let us briefly observe how this derivation proceeds. For example, the derivation process of *viral infection* is roughly sketched as in (3a) to (3h).

(3)	a.	virus cause infection	[Lexical Insertion]
	b.	infection is caused by virus	[Passive]
	c.	infection is virus-caused	[Compound Adjective Formation]
	d.	infection which is virus-caused	[Relative Clause Formation]
	e.	infection virus-caused	[WH-*be* Deletion]
	f.	virus-caused infection	[Predicate Preposing]
	g.	virus infection	[RDP Deletion: CAUSE_2][6]
	h.	viral infection	[Morphological Adjectivalisation]

(Levi (1978: 78), with modifications)

(i) a. Nouns conjoin only with other nouns.
b. Nouns may appear after quantifiers, that is, may be counted.
c. Nouns may be categorized by semantic features such as [±definite], [±concrete], [±animate], [±human], and [±common] (or by equivalent system).
d. Nouns may be analysed as entering into case relations such as agentive, objective, locative, dative/possessive, instrumental.
e. Nouns are not subject to the process of nominalization which normally turns predicating elements (verbs and adjectives) into derived lexical nouns.

Some of these properties are reasonable for the categorial status of nouns, but others might be specific to a generative semantic point of view.

[5] There is another process: *predicate nominalisation*. This will be discussed in connection with Gunkel and Zifonun's (2008) explanation in Section 6.2.3.2.

[6] The abbreviation 'RDP' stands for 'Recoverably Deletable Predicate' (see others in (4)). The term 'recoverable' indicates recoverability of deletion (e.g. *you* in imperatives; Chomsky (1965: 144–145)). Levi (1978: 146) argues that the RDP itself is viewed as an 'explicitly mentioned formative'; namely, the RDP set comprises the formally explicit predicates to represent the semantic relations between the constituents of CNs and their derivational processes. Note that "the RDPs normally appear in small capital letters in order to stress that it is the semantic structure that is most relevant to deletability, rather than individual lexical items" (Levi (1978: 81)). For example, the RDP IN represents a general locative predicate: 'x is located at y'; this location can be temporal, spatial, concrete, or abstract (cf. *in*, *on*, *at*). The subscript of the RDP CAUSE, MAKE, and USE will also be explained later in Section 6.2.4.

There are more derivation processes than (3) for other types of CN, but we do not delve into them here. With regard to these processes, Levi (1978) suggests nine specific predicate types (i.e. CAUSE, HAVE, MAKE, USE, BE, IN, FOR, FROM, and ABOUT). Levi (1978) further claims that these predicates, and only these nine predicates, can be deleted in the derivation process of transforming an underlying relative clause construction in (3d) into the ambiguous surface formation of the CN in (3g). She refers to these as 'semantic primes' and explains that they "seem to embody some of the most rock-bottom-basic semantic relationships expressible in human language" (Levi (1978: 161)). Some typical CNs deriving from these nine RDPs are summarised as follows (cf. the traditional terms equivalent to RDPs given in the brackets on the right side).

(4)	a.	CAUSE:	viral infection, malarial mosquitoes	[causative]
	b.	HAVE:	picture book, musical comedy	[possessive / dative]
	c.	MAKE:	honeybee, musical clock	[productive / compositional]
	d.	USE:	steam iron, solar generator	[instrumental]
	e.	BE:	professorial friends, target structure	[essive / appositional]
	f.	IN:	marine life, autumnal rains	[locative (spatial / temporal)]
	g.	FOR:	horse doctor, avian sanctuary	[purposive / benefactive]
	h.	FROM:	olive oil, rural visitors	[source / ablative]
	i.	ABOUT:	tax law, linguistic lecture	[topic]

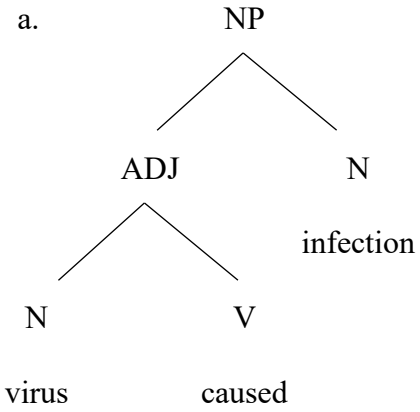
(Levi (1978: 77))

Although we do not scrutinise the detailed derivation of every single CN in (4), we note that the prenominal modifiers of CNs can be derived from either the subject or the direct object of the underlying predicate. For example, *malarial mosquitoes* in (4a) is derived from 'mosquitoes

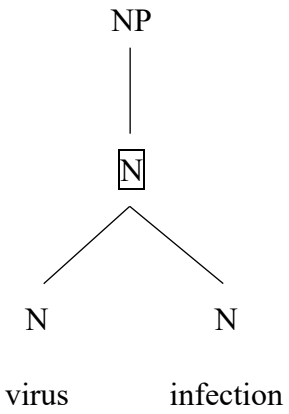
which cause malaria', but *viral infection* is not derived from 'infection which causes viruses' but rather 'infection which viruses cause' (Levi (1978: 77)). Thus, *malarial mosquitoes* is a type of direct object case (the RA *malarial* serves as the direct object for *mosquitoes*), whereas *viral infection* is a type of subject case (the RA *viral* serves as the subject for *infection*). Furthermore, the object case of the underlying predicate is limited to the predicates in (4a–c) (i.e. CAUSE, HAVE, MAKE), because these predicates can only be passivised by virtue of their verbal status.

The CN derivation process first deletes predicate elements which are any lexicalised member of the RDP set (i.e. participle or preposition) and next adjoins the remaining noun to the head noun of the NP (Levi (1978: 141)). Let us observe the constituent structure of the CN *viral infection* affected by this rule, as depicted in (5)

(5) a.



b.



(Levi (1978: 143), with modifications)

While the head noun *infection* is modified by the compound adjective *virus-caused*, which is a separate constituent as in (5a), the modifying element left after RDP Deletion is an integral and inseparable constituent of the head noun as in (5b). The noun at the node in (5b) is the new head noun, which is the CN itself. This structural difference clearly confirms the following different syntactic behaviours, where the RAs in (6) are inseparable from their head nouns, while the predicating compound adjectives are separable, as exemplified in (7).[7]

(6) a. an electric (*and expensive) shaver

b. an occupational (*needless) hazard

(7) a. a sun-drenched (peaceful little) retreat

b. oil-covered (and thoroughly wretched) birds

(Levi (1978: 144))

It is obvious from these observations that while the predicating adjectives in prenominal position are immediately dominated by the NP node (i.e. (5a)), RAs are separated from that NP node by the enclosed N node, which dominates the entire CN construction (i.e. (5b)).

Again, in Levi's analysis, the nine predicates in the CN derivation process can be considered to be basic semantic predicates. We then question why the RDP set should be restricted to these nine members (i.e. CAUSE, HAVE, MAKE, USE, BE, IN, FOR, FROM, ABOUT). Levi contends that these semantic elements are universal in human language, but she has no more explanation than this. We now focus upon the semantic predicates *per se* in order to consider the reason for this in the next section.

[7] Note that when two prenominal modifiers are both RAs and coordinated, they are unproblematic (e.g. *an electric and magnetic field*, *a mental and emotional condition*).

6.2.2. Semantic Predicates and Semantic Roles

In this section, we observe the basic semantics of predication and nominalisations. Specifically, we discuss Nakau's (1994) account of predicates and Gunkel and Zifonun's (2008) account of nominalisations. On the basis of their discussions, we will point out that their analyses, in fact, share a common view with Levi's analysis.

6.2.2.1. Nakau's (1994) Tripartite Theory of Predicates

First, we observe Nakau's (1994) account of sentence predicates. Nakau (1994) develops his semantic theory, called 'Hierarchical Semantics', to reveal how 'situations' (i.e., our world) are constituted and how they are cognitively segmented. He argues that situations consist of the following three types: *state*, *process*, and *action*. He further argues that predicates are also classified into three basic types, as illustrated in (8).

(8) a. state-type predicate: BE (THING, PLACE)

b. process-type predicate: GO (THING, PLACE)

c. action-type predicate: DO (ACTOR, THING)

(Nakau (1994: 311))

State-type predicates (e.g. *know*, *lie*, *stand*) take a THING and a PLACE argument. A THING argument has an invariable characteristic and a PLACE argument denotes the location. Process-type predicates (e.g. *become*, *come*, *cross*, *enter*, *go*, *rise*) also take the same arguments as the state-type, but this type is fundamentally different in that a THING argument expresses a variable characteristic and a PLACE argument expresses direction. Action-type predicates take an ACTOR and a THING argument. This type is further subcategorised into three classes.

(9) a. AFFECT (ACTOR, PATIENT)

b. EFFECT (ACTOR, RESULTANT)

c. ACT (ACTOR, RANGE)

(Nakau (1994: 317))

All the predicates in (9) essentially take an ACTOR argument, but the other argument varies: AFFECT predicates (e.g. *dig*, *paint*, *chase*, *kick*, *kill*) take a PATIENT argument; EFFECT predicates (e.g. *dig*, *paint*, *propose*) take a RESULTANT argument; and ACT predicates (e.g. *do*, *sleep*, *jump*, *walk*) take a RANGE argument (see Nakau (1994: 316–325) for more details).[8]

The difference between state-type and process-type can be captured by the following examples. The examples in (10) are state-type and those in (11) are process-type.

(10) a. There *is* a new roof on the cottage.

b. Mary *is* in good health.

c. The book *costs* 20 dollars.

d. The bottle *contains* wine.

(11) a. We *came* from the theatre.

b. We *passed* across the bridge.

c. Ann *fell* ill.

d. A lamb *grows* into a sheep.

(Nakau (1994: 313–314), italicising mine)

[8] Although it is obvious that verbs and predicates are not in a one-to-one relation (e.g. the verb *put* takes three arguments), every basic predicate is commonly characterised by neither more nor less than two arguments with associated semantic roles. This is an important point for his theory, but we do not delve further into the details here.

The verbs *is*, *cost*, and *contain* in (10) express a state regardless of whether they are transitive or intransitive. The subjects in (10a–c) are THINGs and the complements are LOCATIONs. The sentences in (10a, d) express a location physically, but those in (10b, c) express a location non-physically. On the other hand, the verbs *come*, *pass*, *fall*, and *grow* in (11) are process-denoting predicates whose semantic roles are SOURCE, PATH, GOAL, and GOAL. The sentences in (11a, b) denote a physical movement, but those in (11c, d) denote a change of state. Let us next observe action-type predicates such as those in (12).

(12) a. Mary *painted* the wall; *paint* (AFFECT) (Mary, the wall)

b. Mary *painted* a picture; *paint* (EFFECT) (Mary, a picture)

c. Ann *slept* a sound sleep; *sleep* (ACT) (Ann, a sound sleep)

(Nakau (1994: 318), with slight modifications)

Notice that the verb *paint* in (12a, b) can be either an AFFECT or EFFECT predicate. The object *the wall* in (12a) is a PATIENT argument which is the direct AFFECT of the verb *paint*, whereas *a picture* in (12b) is a RESULTANT argument which derives from the EFFECT of the predicate *paint*. The verb *sleep* in (12c) takes a cognate object *a sound sleep* and specifies a RANGE of the quality of sleeping (cf. *sleep soundly*). In this way, Nakau (1994: 319) strongly argues that the basic three predicates in (8) are the 'archetypes' of basic proposition structure.

6.2.2.2. Gunkel and Zifonun's (2008) Classification of Semantic Roles of Relational Adjectives in Deverbal Nominalisation

Let us next observe Gunkel and Zifonun's (2008) analysis of deverbal nominalisation. Gunkel and Zifonun (2008) argue that English RAs occurring in construction with deverbal nominalisations can be semantically associated with either subject or object argument, due to

their noun-like characters. Furthermore, such interpretive flexibility with respect to the semantic interpretability of RAs can also be seen in 'circumstantial' semantic roles such as LOCATIVES, DIRECTIONALS, and INSTRUMENTALS.

First of all, Gunkel and Zifonun (2008) divide deverbal nominalisations into three types according to their semantics: result nominals denoting 'a state/object resulting from some action or process'; process nominals referring to 'actions/processes'; and agent nominals designating 'the agent of some action or process' (Gunkel and Zifonun (2008: 289)). Each typical example is given in (13).

(13) a. Result: The *pollution* of our waters is severe.

b. Process: The *pollution* of our waters by the local industries has to be stopped.

c. Agent: Any *pollutor* of our waters must be punished.

(Gunkel and Zifonun (2008: 289), italicising mine)

Regarding derivations such as those whereby -(*a*)*tion* appears in both (13a) and (13b), they are in fact difficult to distinguish because a telic verb (i.e. *pollute*) regularly has both readings (i.e. result and process). On the other hand, *pollutor* in (13c) clearly indicates the agent of the action (cf. *-er*, *-or*, *-ar*; *dweller*, *instructor*, *liar*).

Further, these deverbal nominalisations have almost equivalent RA-N constructions, where the semantic roles (e.g. agent or patient) are realised by an RA, as shown in (14).

(14) a. the meeting of the department [*of*-phrase = subject argument]

b. the departmental meeting [RA = agent role]

(15) a. the pollution of the environment [*of*-phrase = object argument]

b. the environmental pollution [RA = patient role]

In (14), the *of*-phrase realises as the subject of *meeting* in (14a) and (almost) the same semantic equivalent construction is *the departmental meeting*, as in (14b). The RA in this example has the semantic role, 'agent'. By contrast, the *of*-phrase in (15a) realises as the object of *pollution* and the corresponding RA-N construction is *the environmental pollution*, in which the RA plays a 'patient' as its semantic role.

As verbs are generally divided into two types, *intransitive* or *transitive*, deverbal nominalisations are divided into these categories as well. Let us first observe the case of event nominals based on intransitive verbs (e.g. *-ing*, *-(a)tion*, *-ment*). RAs in this type of construction can take a subject-related reading, as shown in (16).

(16) a. judicial {acting / action}
b. canine barking
c. human {thinking / dreaming}
d. {American / maternal} {interference / interfering}
e. female participation
f. {departmental / plenary} meeting

(Gunkel and Zifonun (2008: 290))

The RAs in (16) can be interpreted as an agent or experiencer, whereas those in (17) are interpreted as a theme or patient of the underlying verbs.[9]

[9] Interestingly, however, a subject-related reading of the RA "can almost always be overridden by an adding an appropriate *of*-phrase" (Gunkel and Zifonun (2008: 290)), as illustrated in (i).

(i) a. urban expansion *of* Athens
b. rural development *of* Java
c. volcanic eruption *of* Pinatubo
d. cellular division *of* the coelomic epithelia

(Gunkel and Zifonun (2008: 290), italicising mine)

(17) a. atmospheric circulation

b. volcanic eruption

c. judicial failing

d. cellular division

e. {thermal / urban} expansion

f. {economic / industrial / linguistic / occupational / personal / professional / regional / rural / urban} development

(Gunkel and Zifonun (2008: 290))

Note that as with intransitive verbs, when an overt agentive phrase is added (i.e. *by*), a subject-related interpretation has to be changed into a classificatory one. Observe:

(18) a. government supervision *by* the states

b. corporate planning *by* corporations

c. the Norman invasion of England *by* William the Conqueror

(Gunkel and Zifonun (2008: 291), italicising mine)

Second, in the case of transitive verbs, RAs in the relevant construction are interpreted as the subject argument, as in (19).

(19) a. {domestic / human / public} consumption

b. {parental / maternal / paternal / fraternal} protection

c. judicial {execution / interrogation}

The meaning in (i) no longer provides a semantic argument for the deverbal noun, but rather the RAs denote an aspect of the *of*-phrase. For example, *rural development of Java* in (ib) means 'the development of Java's rural area'.

d. {editorial / governmental} supervision

f. medical examination

(Gunkel and Zifonun (2008: 291))

Moreover, in some cases, RAs can also be associated with the object argument, as illustrated in (20).

(20) a. colonial {administration / liberation / suppression}

b. {presidential / governmental} election

c. floral exposition

d. {agricultural / economic / educational / environmental / financial / fiscal / industrial / regional / urban} planning

e. environmental {pollution / protection}

f. {dramatic / electric} production

g. {dramatic / lyric} writing

(Gunkel and Zifonun (2008: 291))

In these examples, many are restricted to denoting result states or result objects.[10] Interestingly,

[10] A theme or patient reading is blocked by an *of*-phrase, as in (i).

(i) a. colonial administration *of* India
b. racial discrimination *of* black people
c. urban renovation *of* three cities

(Gunkel and Zifonun (2008: 291), italicising mine)

Further, as has often been pointed out in the pertinent literature (cf. Kayne (1981), Grimshaw (1990)), when the subject argument is simultaneously realised, ethnic adjectives are ruled out from being semantically related to the object position, as compared (iia) to (iib).

(ii) a. Polish invasion remembered.
b. * the Polish invasion by the Germans

(Gunkel and Zifonun (2008: 291))

the nominalisations of object-related RAs as in (a)-examples, in fact, compete with synthetic compounds in (b)-examples across (21)–(23).

(21) a. {bovine / canine / equine / feline} breeding

b. {cattle / dog / horse / cat} breeding

(22) a. floral exposition

b. flower exposition

(23) a. dramatic writing

b. drama writing

(Gunkel and Zifonun (2008: 292))

In synthetic compounds, the dependent constituent is generally interpreted as a patient or theme argument of the deverbal heads. Also, agent nominals with object-related RAs can be observed as well, as represented in (24).

(24) a. urban planner

b. colonial ruler

c. symphonic composer

d. {dramatic / lyrical} writer

e. racial discriminator

f. {canine / equine} breeder

(Gunkel and Zifonun (2008: 292))

Furthermore, RAs can be associated with the 'circumstantial' semantic roles (i.e. LOCATIVES, DIRECTIONAL, and INSTRUMENTALS), which occur in combination with both event

nominalisations in (a)-examples and agent nominalisations in (b)-examples, as provided in (25)–(27), respectively.

(25) LOCATIVES

a. Event: Italian travelling

b. Agent: coastal walker

(26) DIRECTIONALS

a. Event: polar expedition

b. Agent: lunar traveller

(27) IINSTRUMENTALS

a. Event: aural comprehension

b. Agent: manual worker

(Gunkel and Zifonun (2008: 292))

RAs in English are thus related to subject or object argument positions and they play a role either as LOCATIVES, DIRECTIONALS, or INSTRUMENTALS in deverbal nominalisations.

We have very briefly observed Nakau's (1994) and Gunkel and Zifonun's (2008) semantic analyses, in light of which I assume that they have some similar points to Levi's (1978) analysis. Let us consider this in the next section.

6.2.3. Integrating Discussions into the Semantics of Complex Nominals

In this section, we explore how Levi's (1975, 1978) nine semantic predicates are correlated with Nakau's (1994) three basic predicates and Gunkel and Zifonun's (2008) semantic roles of RAs. By combining them, as a possible explanation for the interpretive variety in CNs, we propose that Levi's RDPs can be reduced to Nakau's basic predication types. This means that

Levi's (1975, 1978) proposal of 'word-level' predicates has a common semantic background with 'sentence-level' predicates in Nakau's (1994) tripartite theory. Furthermore, Gunkel and Zifonun's (2008) analysis is considered to correspond to Levi's and Nakau's semantic account in that nominalisations must be explained in terms of their argument relation of the base verbs and RA's semantic roles must also be limited to the basic semantic predicates; that is, the deverbal nominalisation is based on the sentence-level predication system.

We first attempt to integrate all the elements concerned with the semantics of CNs in one table below and observe how they correspond to each other. Note that the following table is not intended to illustrate a 'perfect' picture of the correspondence but a mere attempt to find an underlying common semantic principle in both sentence-level and word-level predicates, CNs in particular.

Table 6.1. Correspondence of semantic predicates and semantic roles

RDPs (Levi (1975, 1978))	Sentence predicates (Nakau (1994))	Theme roles in deverbal nominalisations (Gunkel and Zifonun (2008))
BE (*soldier ant*) IN (*marine life*) FOR (*horse doctor*) ABOUT (*tax law*) HAVE (*apple cake*; *lemon peel*)	State: BE (THING, PLACE)	LOCATIVES (*Italian travelling*; *coastal walker*)
FROM (*solar energy*)	Process: GO (THING, PLACE)	DIRECTIONALS (*polar expedition*; *lunar traveller*)
USE (*voice vote*) CAUSE (*tear gas*; *drug deaths*) MAKE (*musical clock*; *daisy chains*)	Action: DO (ACTOR, THING) {AFFECT (ACTOR, PATIENT) EFFECT (ACTOR, RESULTANT) ACT (ACTOR, RANGE)}	AGENT (*judicial action*; *judicial execution*) PATIENT (*judicial failing*; *floral exposition*) INSTRUMENTALS (*aural comprehension*; *manual worker*)

As represented in Table 6.1, Levi's (1975, 1978) nine predicates can be separated by Nakau's

(1994) three types of sentence predicates (i.e. *state*, *process*, and *action*). The detailed correspondences will be given later. Also, Gunkel and Zifonun's (2008) classification of RA's semantic roles in deverbal nominalisation can be distinguished by referring to Levi's and Nakau's analyses. Although RA's agent and patient readings and role of INSTRUMENTALS are attributed to the action-type predicates because of their verbal properties (i.e. action predicates), the other semantic roles like LOCATIVES and DIRECTIONALS seem to belong to Nakau's state and process-type predicates, respectively. The motivation for suggesting such an association needs a fine-grained explanation. Let us move on to each correspondence with semantic predicates of CNs.

First, we claim that the state-type (BE) predication is parallel with both the LOCATIVE-type nominalisation and the corresponding RDP sets (i.e. BE, IN, FOR, ABOUT, and HAVE). For example, the CNs corresponding to a state-type predicate can be paraphrased respectively, as illustrated in (28).

(28) State-type predicates (including LOCATIVES)

a.	BE:	soldier ant	'an ant that *is* a soldier'	
b.	IN:	marine life	'life *in* the ocean'	
c.	FOR:	horse doctor	'a doctor *for* horses'	
d.	ABOUT:	tax law	'a law that is *about* tax'	
e.	$HAVE_1$:	apple cake	'cake that *has* apples'	[N_1 = object for N_2]
f.	$HAVE_2$:	lemon peel	'peel that a lemon *has*'	[N_1 = subject for N_2]

Each expression in (28) is simply paraphrased by its specific RDP predicate, which is italicised for ease of reference. As we observed in Section 6.2.2, all the head nouns in (28) have an invariable characteristic and the modifiers denote a certain location or function as a location-like element. To take the predicate IN as an example, one may recognise and point out that these

expressions might be paraphrased with far more specific predicates such as INHABIT (e.g. *desert rat*, *field mouse*, *water bugs*), GROW IN (e.g. *water lilies*, *mountain laurel*, *tropical lily*), ACCORDING TO (e.g. *logical impossibility*, *theological fallacy*, *communist tenet*), DURING (e.g. *spring showers*, *autumnal rains*, *night flight*), FOUND IN (e.g. *urban parks*, *city libraries*, *hospital wards*), and OCCUR IN (e.g. *marital adjustments*, *rural unrest*, *urban riots*) rather than the RDPs in (28). However, as claimed by Levi (1978: 84), we need not include the degree of specificity, but rather the minimal number of predicates (i.e. RDPs) is used to "generate (and/or interpret) all these CNs without impairing either the descriptive adequacy or predictive power of the theory" (see also footnote 6). Note that the predicate HAVE has two cases, where the first noun represents the object argument for the second noun (i.e. *apple cake*) and the first noun represents the subject argument for the second noun (i.e. *lemon peel*). In the case of deverbal nominalisation, both *Italian travelling* 'travelling *in* Italy' and *coastal walker* 'a person walking *around* a coast' represent the locational relationship between the RAs and the nominalised heads.

Second, we take a close look at process-type predicate, as provided in (29).

(29) Process-type predicates (including DIRECTIONALS)

a.	FROM:	solar energy	'energy gained *from* sunlight'
b.	FROM:	olive oil	'oil extracted *from* olive'
c.	FROM:	rural visitors	'visitors *from* the country'
d.	FROM:	sea breeze	'breeze *from* the sea'

For example, as paraphrased, the CNs in (29) indicate that there is a certain directionality between N_1 and N_2 (here, mainly 'N_2 from N_1'). Levi (1978: 102) explains that this class of CNs can be divided into subgroups. In the examples in (29a, b), the head noun denotes 'a product or by-product' gained by a certain kind of processing activity from the natural source indicated by the

modifier. The examples in (29c, d) are different in that the modifier basically denotes 'a previous location (e.g. a past habitual location)'. Nakau's (1994) process-type and Gunkel and Zifonun's (2008) DIRECTIONAL-type almost overlap and correspond to the RDP predicate FROM. As argued by Nakau (1994: 312), the process-type predication includes a change of location and a change of state, so their typical semantic roles are SOURCE, GOAL, PATH, and DIRECTION. That is, the critical difference between this type and the state-type is whether the predicate type is DIRECTIONAL or not (i.e. the process-type is [+directionals], whereas the state-type is [−directionals] (Nakau (1994)). This property is completely the same as DIRECTIONALS, a type of semantic role, in deverbal nominalisations (e.g. *polar expedition* 'expedition *to* the polar'; *lunar traveller* 'a person travelling *to* the moon'). In this respect, one of the RDPs, FROM, is equivalent to the process-type predication.

Finally, let us examine how action-type predicates match with the others, as shown in (30).

(30) Action-type predicates (including INSTRUMENTALS)

a.	USE:	voice vote	'vote that *uses* voice command'	
b.	$CAUSE_1$:	tear gas	'gas that *causes* tear'	[N_1 = object]
c.	$CAUSE_2$:	drug deaths	'deaths that drugs *cause*'	[N_1 = subject]
d.	$MAKE_1$:	musical clock	'clock that *makes* music'	[N_1 = object]
e.	$MAKE_2$:	daisy chains	'chains that daisies *make*'	[N_1 = subject]

As shown in (30), action-type predicates are also considerably parallel with Gunkel and Zifonun's (2008) agent (INSTRUMENTALs) type and the rest of Levi's RDPs (i.e. USE, CAUSE, MAKE). Interestingly, except for USE, both CAUSE and MAKE have two cases, according to whether N_1 is subject or object argument for N_2, as observed for HAVE in (28e, f). This is because, as Levi (1978: 78) explains, "CNs which derive their prenominal modifiers from

underlying subjects must go through a stage in which the Passive Transformation applies to the S(ubject) of the relative clause". The same is true of deverbal nominalisations (e.g. agent and patient readings). Other RDP predicates like BE cannot have a subject use. For instance, BE is always blocked from passivisation (e.g. *Suzanne is the mother of Jacques*; **the mother of Jacques is been by Suzanne*, Levi (1978: 78)). The common characteristic is that these action-type predicates have something like an instrument or instrument-like element as a constituent of CN. It is thus not difficult to recognise that either of the CN's constituents in (30) denotes an instrument and shows a certain effect or affect brought about by that instrument as in deverbal nominalisations (e.g. *aural comprehension* 'comprehension by *using* ears', *manual worker* 'a person working *using* hands').

Given these observations, as I have proposed earlier, Levi's nine RDP predicates can be reduced to the more basic predicate types suggested by Nakau (1994) and further related to semantic readings of RAs proposed by Gunkel and Zifonun (2008). In other words, we can regard the generation of CNs as a minimal concatenation of the sentential predication system. That is, the semantic relationships between the constituents of CNs are based on the three basic types of predicates. Therefore, we contend that as we infinitely produce sentences to conceptualise our world with the archetypes of semantic predicates, we also infinitely create CNs in exactly the same way, even though they are very small and compressed forms of linguistic units.

In fact, from a Construction Grammar point of view, such a consequence is a corollary to the principle of 'default inheritance'. We will not explain this in detail here, but succinctly discuss the above analysis in relation to the constructional framework. For example, if we assume that the SENTENCE construction, which is an abstract and schematic construction, has three subtype constructions based on Nakau's (1994) semantic predicate types: the STATE predicate construction, the PROCESS predicate construction, and the ACTION predicate

construction. These constructions have their corresponding subtype constructions, which contain Levi's (1978) nine predicates. For example, the STATE predicate construction is combined with the BE, IN, FOR, ABOUT, and HAVE predicate constructions. Since these subtype constructions inherit semantic predicates from the STATE predicate construction, such a process is a meaning-driven default inheritance. The form structure of the STATE predicate construction is contracted into only two constituents (e.g. N-N, RA-N). Both meaning and form inheritances are so-called mother-daughter relationships. The interpretive flexibility of CNs is established within the constructional network based on the default inheritance of semantic predicates.

6.2.4. Summary

What we have accomplished in this section is summarised as follows. Levi's (1975, 1978) transformational analysis based on the nine RDP predicates can be reduced to the more basic three types of semantic predicates in Nakau (1994) and correspond to Gunkel and Zifonun's (2008) analysis of RA's semantic roles. Put simply, the semantic relations of the constituents consisting of CNs originate in the sentence-level predication system. This implies that CNs can never be produced in disregard of the basic three sentence predicates (i.e. *state*, *process*, and *action*). The discussion leads us to the fundamental fact that our construal of the world is based mainly on the three types of basic predicates, regardless of whether the expression is a sentence or a word. In this respect, the 'complexity' of endocentric CNs can be clarified in terms of the basic predication system, but that of the exocentric remains unclear. Our next task is to establish a theory of the 'productive' process that generates exocentric CNs. This remaining issue is left for future research.

6.3. A-N Constructions in Crossmodal Phenomena[11]

As discussed in detail in Chapter 3, expressions like *bright taste* are generally known as instantiations of so-called *synaesthetic metaphors*, which usually take the form 'adjective + noun' combination, reflecting our integrated sensory modalities. The term *synaesthesia* refers to 'any union of the senses' and it consists of the combination of the Greek morphemes *syn* 'together' and *aisthēsis* 'sensation' (Winter (2019: 67)). As discussed by Lakoff and Johnson (1980), metaphor is a cognitive process that allows the target domain to be reasoned about in terms of the source domain, where the target and source domains are not identical. When the target and source domains are both perceptual domains, the metaphor is called a (strong) synaesthetic metaphor.

For the time being, we will call this class of A-N expression *synaesthetic expression* as a more neutral terminology for our own argument. This section explores the relationship between the sensory hierarchy and the cognitive mechanism underlying the relevant A-N construction. We will specifically argue that A-N synaesthetic expressions should be regarded neither synaesthetic nor metaphoric (cf. Winter (2016, 2017, 2019)). On this basis, we will try to recapture what the sensory hierarchy means by examining the modification relationship between the sensory adjectives and the sensory nouns. We will particularly claim that our two models of modification construction (i.e. the predicating modifier construction and the domain modifier construction) can correspond to whether or not the A-N expressions follow the sensory directionality (i.e. the Unidirectionality Hypothesis). The discussion will be deepened by other scholars' arguments and by what we have analysed in Chapter 3.

[11] This section is a revised and extended version of Ishida and Namiki (2017, 2018) and Ishida (2019a).

6.3.1. The Unidirectionality Hypothesis and Counterexamples

First of all, let us look at the typical examples of synaesthetic expressions in (31).

(31) a. warm colour

b. sweet music

The phrase in (31a) consists of the word *warm* indicating the sensory modality TOUCH and *colour* indicating the sensory modality VISION and denotes a colour that can evoke feelings of warmth like the sun, fire, and heat. In (31b), *sweet music*, consisting of two concepts centred around the sensory modalities TASTE and SOUND, expresses music that can mesmerise audiences. Williams (1976: 463) defines a synaesthetic expression as "the transfer of a lexeme from one sensory area to another". Put more concretely, as explained by Cacciari (2008: 427), synaesthetic expressions are such that "words that pertain to one sensory modality (e.g., vision) are extended to express another sensory modality (e.g., audition)".

However, some unacceptable and uninterpretable expressions are observed. Compare the A-N synaesthetic expressions in (32) with those in (33).

(32) a. sharp tastes

b. dull colors

c. deep sounds

(33) a. ?? bright tastes

b. ?? loud heights

c. ?? sweet blades

(Williams (1976: 465))

In contrast to the expressions in (32), those in (33) are less acceptable or rather uninterpretable, marked '??'. For example, the adjective *bright* (visual sense) in *bright tastes* modifies the noun *taste* (gustatory sense). The contrast between (32) and (33) hints that there is a covert rule underlying the expressions. This rule was, in fact, revealed by Ullmann (1957); that is, there is 'directionality' in synaesthesia. Since this hypothesis was proposed, many researchers have followed this idea and suggested some revised versions (Williams (1976: 463), Yamanashi (1988: 60), Yamada (1993: 38), Mori (1995: 251); cf. Yasui et al. (1976), Ikegami (1985), Kunihiro (1989), Kusumi (1995), Sadamitsu (2005), Cacciari (2008), and Muto (2015)). This section will employ a simplified model based on Ullmann (1957: Ch. 5.2).

(34) Directionality in synaesthesia

Lower sense [TOUCH → TASTE → SMELL → VISION → SOUND] Higher sense

In example (34), there is a direction amongst the senses (i.e. human sensation is generally classified mainly into five senses) indicated by unidirectional arrows from lower senses to higher ones. Ullmann (1957) discovers this directionality in linguistic synaesthesia from his cross-linguistic (synchronic) observations on poetry written in different languages. Following Ullmann's (1957) findings, Williams (1976), on the other hand, diachronically investigates many dictionaries of different languages. He then improves and refines Ullmann's model of directionality, but the basic concept of unidirectionality in synaesthesia does not seem to change much (see Williams (1976: 463)). Their discoveries are still considered intuitively effective, even though it is obvious that many expressions are against the directionality hypothesis (Seto (2003a, b), Muto (2015), Ishida and Namiki (2017), Ishida (2018a, b); attested counterexamples are given in the Appendix to this chapter).

The marked expression *bright taste* itself is difficult to interpret; nonetheless, it can be

meaningful when embedded in an appropriate context. Let us consider the following two contexts, which are repeated from Chapter 3.

(35) Context and Interpretation of *bright taste*

a. Mead is quite possibly one of the oldest alcoholic drinks known to man. Such a unique beverage with its yellow color of sunshine; the smell of flowers; and the sweet, *bright taste*.

b. The sweetness of meat and gravy. The sweetness of well-stewed onion is mixed. The slight sweetness of raisin can also be felt. Let's say…*bright taste*. This is the Sicilian taste, so it almost feels like I am in the Mediterranean.

Regarding (37a), because of the underlined expression, *bright taste* can be interpreted as 'the taste of alcoholic that evokes the sunshine'. Similarly, the expression can be interpreted as 'the taste of meal in a bright place' in (37b); here, in particular, 'the taste of meal in a bright place like Sicily'. These contexts are thus informational enough to metonymically interpret the expression *bright taste* (cf. Komori (2003), Seto (2003a), Ishida (2018b)). In terms of the metonymic interpretation of synaesthetic expressions, Sakamoto (2007: 286) clearly argues that some synaesthetic expressions contain metonymic interpretations that are highly context-dependent and require a felicitous context; otherwise, it is very hard to interpret what they mean due to its sensory conflict.

Sakamoto's strong argument based on his cognitive science-based experiment leads us to conclude that the synaesthetic expressions that contradict the directionality hypothesis necessarily require a felicitous context and a metonymic interpretation because of their highly context-dependent characteristics. Then, how are the expressions that follow or contradict the directionality hypothesis to be analysed and explained? We will next propose a strong claim

for the relationship between the directionality and the characteristics of linguistic synaesthesia.

6.3.2. Synaesthetic Metaphors are Neither Synaesthetic Nor Metaphoric

If the above analysis is on the right track, as we believe it is, then we can say that there are two types of modification patterns in A-N synaesthetic expressions. We will further point out that some A-N expressions that have been regarded as 'synaesthetic' are actually neither synaesthetic nor metaphoric.

Strik Lievers (2017) strongly argues that so-called synaesthetic metaphors should be considered carefully because some of them are already conventionalised, which means they are lexicalised. Strik Lievers (2017) calls synaesthetic expressions such as *sweet voice* 'conventional synaesthesia'. We further add some examples such as those in (36), which follow the directionality hypothesis.

(36) Conventional synaesthesia

a. sweet melody, sweet voice (TASTE to SOUND)

b. sweet smell, sweet fragrance (TASTE to SMELL)

(cf. Strik Lievers (2017), Winter (2017, 2019))

One may notice that the expressions in (36) are conventional and interpretable without any specific contexts. On this basis, Strik Lievers (2017) strongly suggests that conventional synaesthesia should no longer be regarded as 'truly synaesthetic'.

Winter (2017, 2019) also sceptically analyses synaesthetic metaphors and concludes that there are neither synaesthetic nor metaphoric expressions in synaesthesia. Winter (2017, 2019) points out that some sensory adjectives such as *sweet* have already established their lexical meanings as evaluative adjectives. The adjective *sweet*, in fact, lacks its original sensory

meaning in the examples in (36) and their evaluative meanings are already listed in dictionaries. Observe the definition of *sweet* as an adjective in (37) below.

(37) *sweet* [adjective]

If you describe something as sweet, you mean that it gives you great pleasure and satisfaction. e.g. *the sweet smell of her shampoo*, *a stream of sweet water*, *the sweet sounds of Mozart*, *He was a sweet man but when he drank he tended to quarrel*.

(*Collins Online Dictionary*, s.v. *sweet7*)

As represented in (37), the synaesthetic expressions *sweet smell* and *sweet sounds* clearly appear in the definition. Sensory adjectives like *sweet* can be considered as being lexicalised through metaphoric or metonymic extension and are thus no more part of synaesthetic phenomena, as strongly argued by Winter (2017, 2019).

Moreover, this fact can also be applied to other sensory adjectives, as shown in (38).

(38) Evaluative adjectives

a. warm colour, warm sound (TOUCH to VISION / SOUND)

b. loud colour, loud perfume (SOUND to VISION / SMELL)

c. quiet colour, quiet pattern (SOUND to VISION)

The adjectives in (38) are all evaluative and the A-N expressions are naturally interpretable without any specific contexts. Incidentally, while the *warm*-N expressions in (38a) follow the directionality hypothesis, the *loud*-N in (38b) and the *quiet*-N expressions in (38c) go against it. As indicated below, the evaluative meaning of each adjective is already entered in dictionaries as well.

(39) *warm* [adjective]

Warm colours have red or yellow in them rather than blue or green, and make you feel comfortable and relaxed. e.g. *We hope the colour gives the house a warm and inviting feel*; *The basement hallway is painted a warm yellow*.

(*Collins Online Dictionary*, s.v. *warm3*, cf. *OALD*, s.v. *warm4*)

(40) *loud* [adjective]

If you describe something, especially a piece of clothing, as loud, you dislike it because it has very bright colours or very large, bold patterns which look unpleasant. e.g. *He liked to shock with his gold chains and loud clothes*; *I once paid £120 for an extremely loud shirt which I've yet to wear*.

(*Collins Online Dictionary*, s.v. *loud3*, cf. *OALD*, s.v. *loud4*)

(41) *quiet* [graded adjective]

You describe colours or clothes as quiet when they are not bright or not very noticeable. e.g. *They dress in quiet colors so as not to call attention to themselves*.

(*Collins Online Dictionary*, s.v. *quiet9*, cf. *OALD*, s.v. *quiet3*)

On this basis, there are many exceptions from the prototypical synaesthetic expressions. These instantiations tell us that regardless of whether they follow or go against the directionality hypothesis, there are many adjectives that are established as having certain evaluative meanings via a metaphoric or metonymic extension. This lexicalising process of extended uses of adjectives is quite similar to that of phrasal names, discussed in detail in Chapter 3. For instance, the expression *quiet colour* can be paraphrased as 'quiet tones of colour'. The noun *tones* here denotes the same semantic domain of *quiet*; namely, SOUND. The adjective *quiet* thus metonymically refers to the implicit noun *quiet tones* and further modifies the apparent head noun *colour* (i.e. VISION). It is also possible to assume that *quiet* here may metaphorically

denote a peaceful or calm situation. In this case, too, since metaphoric extension occurs only in the adjective *quiet* but not between the adjective and the noun. In this respect, some synaesthetic metaphors are neither synaesthetic nor metaphoric anymore.

Winter (2017, 2019) contends, based on the above discussion, that the term 'synaesthetic metaphor' is not appropriate for the relevant linguistic phenomena. Following Winter (2019: 77), we suggest that this class of expressions should be called 'crossmodal expressions' (cf. intersense expressions) due to their non-synaesthetic and non-metaphoric characteristics. This implies that, regardless of Ullmann's directionality, conventionalised (i.e. lexicalised) synaesthetic expressions can appear independently in a decontextualised manner (cf. *dead metaphors*). In other words, synaesthetic expressions which can be interpreted by themselves (i.e. self-contained) are established through a certain process, that is, 'decontextualisation via conventionalisation' (cf. Ishida and Namiki (2018: 138)).

However, there are some apparently 'true' synaesthetic expressions. Look at the following expression, which Strik Lievers (2017) calls 'living synaesthesia' in comparison to conventional synaesthesia. The expression in (42) is cited from Emily Dickenson's poetry.

(42) Living synaesthesia

Let no Sunrise' <u>yellow noise</u> / Interrupt this Ground[12]

As can be noticed, living synaesthesia is so stylistic that it is quite sensitive to the embedded context; otherwise, it cannot be interpreted due to its conceptual conflict. For example, *yellow noise* in (42a) might be interpreted either 'public noisiness' or other religious relevant readings based on the context, but the intended interpretation can vary, depending on the literary critic or stylistician. We argue, however, living synaesthesia like *yellow noise* in (42) should be regarded

[12] Emily Dickenson, *Ample make this Bed*.

as ‘stylistic’ synaesthesia. This kind of synaesthesia should be attributed to literary genre because it actually includes some important stylistic techniques such as hypallage (e.g. *the brown dryness of her hair* ‘the dryness of her brown hair’, cf. transferred epithet).[13]

Accordingly, regardless of whether or not the A-N synaesthetic expressions follow the directionality hypothesis, there are many such expressions that are neither synaesthetic nor metaphoric. However, it is still a clear fact that the expressions which follow the directionality hypothesis sound more natural than those which go against it. In this respect, we will attempt to recapture what the directionality hypothesis possibly means from a more genuine linguistic point of view, from that of noun modification by adjectives.

6.3.3. Noun-Based Modification vs. Adjective-Based Modification

The reason why A-N expressions following the directionality hypothesis are called ‘synaesthetic metaphors’ is attributed to Conceptual Metaphor Theory (CMT) (cf. Lakoff and Johnson (1980)) and the canonical A-N modification pattern; namely, in the CMT, more abstract concepts are construed on the basis of more concrete concepts (i.e. realised as ‘A (target domain) is B (source domain)’) and the predicating modifier construction follows this (e.g. *sharp taste*). However, the expressions which go against the directionality hypothesis should be regarded as instantiations of the blended domain modifier construction (e.g. *bright taste*), which has been analysed in Chapter 3. Specifically, this section argues that A-N synaesthetic expressions which follow the directionality hypothesis allows us to interpret ‘head nouns’ based on adjectives, whereas those against the directionality hypothesis forces us to construe ‘adjectives’ based on head nouns. I call the former modification *Noun-based modification* (cf. the predicating modifier construction) and the latter *Adjective-based modification* (cf. the (blended) domain modifier construction). The relationship between the directionality hypothesis and the

[13] Cited from Ullmann (1957: 197).

semantics of A-N combination can be recaptured in this way.

To distinguish the former from the latter, we first examine how differently they behave. We will not pay close attention to this, though, because we have already observed in detail in Chapter 3, in which some predicating adjectives behave like domain modifiers. Let us briefly compare *sharp taste*, which follows the directionality hypothesis (i.e. TOUCH to TASTE) with *bright taste*, which goes against it (i.e. VISION to TASTE), as shown in (43). The former can be predicative, but the latter cannot.

(43) Lack of predication possibility

a. sharp taste 'the taste is sharp'

b. bright taste ?? 'the taste is bright'

(cf. Ishida and Namiki (2017), Ishida (2018b))

This contrast suggests that the adjective *sharp* in (43a) can be identified as a predicating adjective, whereas *bright* in (43b) is a non-predicating adjective.

Another contrastive property observed between the A-N expressions is whether or not the adjectives can be modified by gradable adverbs such as *very* or *too*, as shown below.

(44) Lack of gradable properties

a. a {very / quite / too} sharp taste

b. ?? a {very / quite / too} bright taste

The adjective in (44a) can be modified by gradable adjuncts, but that in (44b) cannot. This overt contrast is considered with respect to the fact that such an adjective in (44b) should be analysed differently; namely, even though these adjectives are apparently the same as canonical

predicating adjectives, their semantic properties are completely different from those in (44a). Consider the following minimal pair in (45).

(45) a. sharp taste [TOUCH to TASTE]; *sharp*: a predicating modifier[14]

b. ?? bright taste [VISION to TASTE]; *bright*: a (blended) domain modifier

Although both A-N expressions in (45) are apparently synaesthetic expressions, their contrastive behaviours and their directionality differences tell us that the adjectives differ from each other. The adjective *sharp* in (45a) is a predicating modifier whereas *bright* in (45b) is a domain modifier (precisely, a blended domain modifier).

Therefore, A-N synaesthetic expressions which follow the directionality hypothesis in (34) are instantiations of the predicating modifier construction, whereas those which go against the directionality hypothesis are those of the (blended) domain modifier construction. Our interest then goes to a more common cognitive strategy underlying A-N synaesthetic expressions.

To conceptualise the meaning of *sharp taste* and *bright taste*, we summarise how each is interpreted with respect to the directionality.

(46) a. sharp taste: understanding N (*taste*) via A (*sharp*)

b. bright taste: understanding A (*bright*) via N (*taste*)

In (46a), we interpret the lower sense *sharp* based on the higher sense *taste*. Here, if we

[14] One might argue that *sharp* does not indicate a tactile sense (i.e. TOUCH), but rather it indicates a visual sense (i.e. VISION) and hence *sharp taste* is also an A-N expression that goes against the directionality hypothesis (i.e. VISION to TASTE). This intuition seems correct. However, when we imagine a certain possible antonym of *sharp taste* (i.e. bitterish, sour, pungent), it may be *sweet taste* or *dull taste* (i.e. tasteless). Since both *sweet* and *dull* in this case cannot be perceived through our visual sense, but our tactile sense, I regard *sharp* in *sharp taste* as an instance following the directionality hypothesis.

reinterpret the low-high sensory continuum based on a more general cognition like metaphor, it can be parallel to the degree of 'abstractness' (cf. the CMT). The more senses belong to the low-level, the lower their abstractness becomes, and *vice versa* (i.e. the more senses are attributed to the high-level, the higher their abstractness becomes). To recapitulate this, we construe the more abstract concept of the head noun (i.e. *taste*) via the less abstract concept of the adjective (i.e. *sharp*). This follows from its predicability (i.e. N *be* A); that is, the referent of N should be determined in advance; otherwise, A cannot function as predicating a property of the referent. In this sense, following Langacker's (1987, 1991) terminology, N is a conceptually autonomous element, whereas A is a conceptually dependent element. This construal mechanism is reversed in (46b). In (46b), we interpret the relatively lower sense *taste* based on the higher sense *bright* (i.e. the adjective metonymically refers to 'bright regions', cf. *quiet colour* 'quiet tones of colour'). In this case, as analysed in Chapter 3, N is conceptually dependent while A is autonomous.

Let us summarise the above analysis in Table 6.2.

Table 6.2. Two types of conceptualisation in A-N crossmodal modification

	sharp taste (A-N)	bright taste (A-N)
directionality	lower sense–higher sense	higher sense–lower sense
autonomy-dependence	dependent–autonomous	autonomous–dependent
abstractness	less abstract–more abstract	more abstract–less abstract

In Ishida (2018), I call these two distinct patterns the predication-based modification and the domain-based modification, respectively. Predication-based modification allows us to construe a more difficult (i.e. N: more abstract; higher sense) concept via a less difficult (i.e. A: less abstract; lower sense) concept. In addition, since this type follows the directionality hypothesis,

it can generally be understood without context. Domain-based modification, on the other hand, also conceptualises a more difficult concept via a less difficult one but their categories are reversed: not *N via A* but *A via N*. As we have observed, this type contradicts the directionality hypothesis and cannot be understood without context. It essentially needs an adequate context which enables us to understand this type of expression (e.g. *quiet green*, *loud perfume*, *silent bitterness*, *whispering caress*, *white smell*, *pale touch*, *aromatic taste* (Ishida and Namiki (2017: 49–50), see also Appendix).

Accordingly, we have clarified the relationship between the directionality hypothesis and the cognitive mechanism with respect to the modification patterns. A-N expressions which follow the directionality hypothesis allows us to interpret head nouns based on adjectives (i.e. Noun-based modification), whereas those against the directionality hypothesis forces us to construe adjectives based on head nouns (i.e. Adjective-based modification). More specifically, in the latter case, the adjectives are actually 'type-shifted' (cf. Pustejovsky (1995)) from its predicating function to domain-identifying function at an interpretive level.

In this way, we have recaptured the unidirectionality hypothesis from a modification point of view. The notion of 'directionality', thus, does not belong to linguistic synaesthesia above, but it follows from a more general principle of noun modification by adjectives.

6.3.4. Summary

To conclude, this section has reanalysed A-N synaesthetic expressions. We have argued that there are many neither-synaesthetic-nor-metaphoric expressions by adducing highly conventionalised examples. In relation to the directionality hypothesis, it seems safe to say that the expressions that follow this can correspond to the predicating modifier construction, whereas those which do not can be equivalent to the (blended) domain modifier construction. The construction grammar account should be more carefully taken and examined, but it has provided

us with a plausible explanation for what the hypothesis indicates linguistically.

The pertinent literature says that there is an apparent directionality in our sensory systems. Although the reason for this still remains unclear, we should bear in our mind that neuro-physical or psychological synaesthesia (cf. Galton (1880a, b), Ramachandran and Hubbard (2001), Simner (2006)) is arguably different from linguistic synaesthesia (cf. Werning et al. (2006), Petersen et al. (2008), Shen and Aisenman (2008)). As strongly argued by Cacciari (2008: 431), "the synaesthetic use of language must be distinguished from perceiving the world synaesthetically, fairly infrequent experience". As a possible explanation, our analysis reveals the fact that the unidirectionality hypothesis can be considered to be one of the realisation patterns of noun modification by adjectives in human language, particularly in accordance with a combination between sensory adjectives and nouns.

6.4. Similitudinal Compound Adjectives in English and Japanese[15]

This section deals with similitudinal compound adjectives (e.g. *cat-like* 'similar to a cat') and compares their realisation patterns in English and Japanese. We will first overview Günther et al.'s (2018) discussion of adjectival phrasal compounds in English. With respect to non-argumental (phrasal) compounds, which are a type of compound defined by Günther et al. (2018), we then point out that this type of compound in Japanese is not very productive and needs some specific similitudinal morphemes (e.g. *-no youni*/*youna* '-like', *-hodo* 'as'). We will try to explain why it is that Japanese needs such markers in order to express the similitudinal meaning, whereas English does not need them and expresses it in the same form of argumental compounds instead. We will give a possible answer to this by introducing the notion *lexical referentiality* (Watanabe (2019)).

[15] This section is a revised and extended version of a poster presented at Prosody and Grammar Festa 4, held at Kobe University in February, 2020.

6.4.1. Two Types of Adjectival Head Compounds in English

It has been said in the relevant literature that the existence of adjectival phrasal compounds is allegedly denied or at least considered a marginal phenomenon (cf. Trips and Kornfilt (2015, 2017), Lieber (1988), Meibauer (2007)). However, Günther et al. (2018) strongly argue that English does have adjectival phrasal compounds by adducing a number of examples from the Corpus of Contemporary American English (COCA, Davies (2008–)).

Some scholars have pointed out that while compounds with a lexical non-head can have nominal, adjectival, verbal, and prepositional heads, compounds with a phrasal non-head only have nominal heads. Phrasal compounds are "complex words that combine a lexical head and a phrasal non-head" (Günther et al. (2018: 1)) and those with a phrasal non-head are provided in (47).

(47) a. a *chicken and egg* situation
b. the *out of touch* policy
c. this *Steffi is great* attitude
d. the *why should it happen to me?* variety

(Trips (2014: 44), cf. Günther et al. (2018: 1), italicising mine)

The units of constituents italicised in each non-head position in (47) are various types from the simple phrasal form in (47a, b) to the full clause in (47c) and the interrogative in (47d).

We then turn to an overview of adjectival compounds (i.e. compounds with adjectival heads). As discussed by Bauer et al. (2013: 452), the classification of adjectival compounds is quite similar to that of N-N compounds. The examples in (48) are all argumental compounds, where the non-head is an argument of each adjectival head.

(48) Argumental adjectival compounds

a. sugar-free, flood-prone, kitchen-proud, syllable-final, cost-intensive

b. palate-exciting, attorney-written, event-related

(Bauer and Huddleston (2002: 1657), Günther et al. (2018: 3), cf. Conti (2010))

The heads in (48a) are simple adjectives and those in (48b) are participles. Bauer and Huddleston (2002: 1657) call this argumental-type compound 'incorporated complement/modifier'. On the other hand, there are non-argumental compounds, where the non-head functions as a genuine modifier. In this type, apart from the various semantic relationship in N-N compounds, they express a similitudinal relation, which is called 'comparative/intensifying' by Bauer and Huddleston (2002: 1657).[16] Let us observe this in (49).

(49) Modificational adjectival compounds

a. gem-hard

b. steel-strong

c. jewel-expensive

d. crystal-clear

e. bottle-green

f. razor-sharp

(Günther et al. (2018: 3), Bauer and Huddleston (2002: 1656))

The similitudinal meaning in this compound is frequently paraphrased as 'A as N', For example, *gem-hard* in (49a) can be interpreted as 'hard as a gem'. There is also another type of adjectival

[16] As a typical example of intensification, the lexical item *stone* as the non-head functions as an intensifier in many cases such as *stone-cold*, *stone-dead*, *stone-deaf*, *stone-hard*, *stone-grey*, *stone-blind*, *stone-broke*, *stone-heavy*, and *stone-quiet* (Günther et al. (2018: 3)).

compounds, which uses 'measure terms' (Bauer and Huddleston (2002: 1657)) to express a similitudinal meaning. For instance, *ankle-deep* means 'deep as ankle' and *week-long* 'long as a week'. In some cases, it does not seem clear whether the semantic relation between the constituents is argumental or modificational (e.g. *Bills is religion-blind*, *colour-blind*, *blind to the differences of people*), but most of them can be divided into either argumental or modificational.[17] Therefore, we have mainly two types of adjectival compounds: argumental and modificational (including the measure type).

Let us now look at the data of phrasal non-heads collected by Günther et al. (2018). The above general overview of adjectival compounds draws our focus to adjectival 'phrasal' compounds. Observe the argumental cases in (50).

(50) Argumental phrasal compounds

a. Over the last half of the 1990s, we were all a little bit too shareholder focussed, too *growth-at-any-cost focussed*

b. The pop star refused to acknowledge anything *mistletoe-and-holly related* until after her big day.

c. text-centred (structuralism, poststructuralism, and deconstruction) or *text-and-reader interactive* (reader-response criticism and reception theory)

d. the storable hood is detachable, and the collar is *chin-and-nose-friendly* with a soft fleece lining.

e. It's been a challenge to get the meters *plug-and-play ready*.

(Günther et al. (2018: 10), italicising mine)

[17] There are also coordinative adjectival compounds such as *goofy-crazy*, *deaf-mute*, *true-false decision*, and *dark-light pattern* (Günther et al. (2018: 4)).

The compounds italicised in (50a) and (50b) have the past-participle adjectival heads and those in (50c-e) have other kinds of adjectival heads. The semantics of all the compounds in (50) follows the argument structure of the base verb. On the other hand, the non-argumental (i.e. modificational) version can be illustrated in (51).

(51) Modificational phrasal compounds

a. They come from the Home Made Bakery in Wailuku which will sell them only *straight-out-of-the-oven hot*: […]

b. But I was *out-of-mind insecure* about hiring such a young man.

c. The short ribs […] taste like a classic Midwestern pot roast and were *falling-off-the-bone tender*.

d. A hotel bedroom and bathroom should be *eat-off-the-floor clean*.

e. it sports a blade of racy M4 stell, a fine-grained powdered stell that's *out-of-this-galaxy sharp*.

f. […] is ED WOOD, 30, our hero. *Large-than-life charismatic*, confident, Errol Flynn-style handsome

g. And she was classy. As in *year-in-England classy*, with a sort of mid-Atlantic accent that made you think maybe she was Canadian.

h. Say something funny. Not *lawyer-and-a-lightbulb funny* but something that takes into account the tenseness of the situation.

(Günther et al. (2018: 11–12), italicising mine)

None of the adjectival heads in (51) is derived from verbs or nouns and the non-heads are not clearly arguments of the heads. For instance, the interpretation of (51c) is 'tender to a very high degree' and that of (51d) is 'clean to a very high degree' (Günther et al. (2018: 11)). Further,

the compounds in (51g, h) represent 'classifying' meanings rather than intensifying interpretations. The example in (51g) means 'classy as someone who spent time in England' and that of (51h) 'funny as the humour in a particular kind of joke' (Günther et al. (2018: 12)). We can, however, roughly regard all the expressions in (51) as instantiating a certain similitudinal meaning, since they express such a meaning basically by designating a certain 'concrete referents' (e.g. *straight out of the oven*, *falling off the bone*, *year in England*), regardless of whether the specific interpretation is either intensifying or classifying. Thus, the adjectival phrasal compounds in (51) are typical examples that follow the non-argumental (i.e. modificational) and similitudinal (cf. intensifying/classifying) semantics.

In sum, Günther et al.'s (2018) findings can be summarised in Table 6.3, which includes a measure defining type.

Table 6.3. Non-phrasal and phrasal adjectival compounds in English

	N-A	XP-A
Argumental	reader-friendly	chin-and-nose friendly
Modificational	hospital-clean	eat-off-the-floor clean
Measure	skin-deep	1.5-cubic-yard deep

(cf. Günther et al. (2018: 17))

First, from a semantic point of view, English has adjectival phrasal compounds with both argumental and modificational (i.e. non-argumental) meanings. The dominant interpretation of the modificational type is similitudinal with reference to "prototypical or hyperbolic events" (Günther et al. (2018: 17)). Second, from a morphosyntactic point of view, regardless of whether the relevant compounds are argumental or modificational, they exhibit the same structure as the nominal phrasal compounds (i.e. they are right-headed and have diverse syntactic

structures in non-head position). With these facts in mind, we will now turn to Japanese corresponding expressions in the next section.

6.4.2. Compound Adjectives in Japanese

In Japanese, there are many argumental types of adjectival compounds. The typical examples are provided in (52).

(52) Argumental adjectival compounds

a. hara-guroi ‘black-hearted, evil-minded’
stomach-black

b. kokoti-yoi ‘comfortable’
feeling-good

c. isi-hakuzyakuna ‘weak-minded’
will-weak

d. hyozyo-yutakana ‘expressive’
expression-rich

(Shibatani and Kageyama (1988: 454), Kageyama (1993: 199))

The adjectival compounds in (52) have a subject argument as their non-heads, but their heads are different. Thus, Japanese adjectival compounds are mainly divided into two types with respect to what the adjectival heads are. The heads in (52a, b) are canonical adjectives (i.e. *-i* adjectives), while those in (52c, d) are adjectival nominals (i.e. N+*-na* adjectives). The argumental adjectival compounds are quite productive (see Kageyama (1993)). In terms of phrasal compounds, Japanese behaves differently from English (e.g. *an over the fence gossip*) but has some exceptions, e.g. *kireena mati-dukuri* (clean city-making) ‘construction of a clean

city' (Nishiyama (2017: 149)). Since this kind of phrasal compounds in Japanese is complex and still controversial, we will not examine this here.

The non-argumental adjectival compounds in Japanese are very limited and unproductive. The typical examples are only those in (53).

(53) Modificational adjectival compounds

a.	mimi-atarasii	'new to know'
	ear-new	
b.	me-atarasii	'new to see'
	eye-new	
c.	sigoto-nessinna	'work-minded, dedicated'
	work-hard	
d.	kinzyo-meiwakuna	'nuisance to neighbourhood'
	neighbourhood-nuisance	

(Kageyama (1993: 199))

In the modificational adjectival compounds in (53), too, there are two types (i.e. the heads are *-i* adjectives as in (53a, b) and N+-*na* adjectives as in (53c, d)). Further, the non-heads, in this case, function as complements. Kageyama (1993: 199) and Nishiyama (2019: 251) (cf. Nishiyama and Nagano (2020: Ch. 3, §4) point out Japanese has a low number of adjectival compounds of this type. Therefore, Japanese has many argumental adjectival compounds including very few phrasal ones, while it has a very limited number of non-argumental (i.e. modificational) ones. Then, how does Japanese represent the modificational adjectival compounds?

In terms of this type of adjectival compounds, we are now in a position to compare their

English examples with literally corresponding Japanese expressions.

(54) a. gem-hard; ??houseki-katai

b. jewel-expensive; ??houseki-koukana

c. crystal-clear; ??suisyoo-sunda

d. bottle-green; ??botoru-midori-no

As illustrated in (54), if we translate the English modificational adjectival compounds literally into Japanese compounds (i.e. N-A forms), the latter sound quite odd and unnatural. Instead, we need to morphologically mark the similitudinal relationship between the constituents in Japanese, as represented in (55).

(55) a. gem-hard; houseki-{noyouni/hodo/namini/gurai}-katai
gem-SIM-strong

b. jewel-expensive; houseki-{namini/hodo/namini/gurai}-koukana
jewel-SIM-expensive

c. crystal-clear; suisyoo-{noyouni/hodo/namini}-sunda
crystal-SIM-clear

d. bottle-green; botoru-{noyouna/gurai}-midoriiro-no
bottle-SIM-green (bottle indicates *wine bottle*)

In order to obtain the intended meaning of each English expression, elements like *-noyouni*, *-hodo*, *-namini*, or *-gurai* must be added. They all express a certain similitudinal meaning (i.e. 'similar to, like, as'). Such a rule of morphological marking can also be applied to the phrasal compounds, as illustrated in (56).

(56) a. knock-down knock-your-socks-off spectacular

?? attou-teki-de gyouten-suru migotona

attou-teki-de gyouten-suru-hodo$_{SIM}$ migotona

b. straight-out-of-the-oven hot

?? oobun-kara sonomama mottekita atui

oobun-kara sonomama mottekita-toiuguraini$_{SIM}$ atui

c. out-of-mind insecure

?? ware-o usinau huan'na

ware-o usinau-hodo$_{SIM}$ huan'na

d. falling-off-the-bone tender

?? honekara otiru yawarakai

honekara otiru-hodo$_{SIM}$ yawarakai

e. year-in-England classy

?? eikoku-de sugosu zikan zyoohinna

eikoku-de sugosu zikan-hodo$_{SIM}$ zyoohinna

Therefore, with respect to the modificational adjectival compound, Japanese morphologically needs a certain similitudinal element. On this basis, we will explain why Japanese needs such an element to express the similitudinal semantics, by referring to the notion of *lexical referentiality*. This theoretical notion can be one of the reasonable explanations for the realisational contrast between English and Japanese.

6.4.3. The Degree of Lexical Referentiality

Lexical referentiality is the idea of to what extent a given word or expression directly designates the referent in the context. Watanabe (2018, 2019) explains that deverbal

compounds in French implicitly express their referents. The typical examples of this can be observed in (57), where certain instruments are designated.

(57) a. coupe-papier ‘paper-knife’ lit. cut paper
b. essuie-tout ‘kitchen paper’ lit. wipe everything
c. passe-partout ‘master key’ lit. pass everywhere

(Watanabe (2018: 5), Watanabe (2019: 195))

In (57a), for example, *coupe-papier* literally means ‘cut paper’ and it does not clearly have the referent (i.e. *knife*) as its constituent of the compound like English (e.g. *paper-knife*). That is, the French compound merely denotes the function of the instrument but not the referent *per se*. In other words, *coupe-papier* only expresses the telic role (i.e. to cut paper) of the referent but not the thing itself. Whereas English *paper-knife* directly represents the referent in the compound, French indirectly denotes it only by referring to the functional characterisation of the referent (i.e. *knife*). In this sense, French can be said to have lower lexical referentiality than English.

Let us see other examples in French. The examples in (58) are known as idiomatic or figurative expressions. Interestingly, each expression in (58) corresponds to a similar idiomatic or metaphoric expression in English.

(58) a. coûter la peau de fesses ‘to cost a bomb, to cost an arm and a leg’
lit. to cost the skin off one’s arse
b. Il pleut des cordes. ‘It is raining cats and dogs’
lit. It is raining ropes
c. Il est un porc. ‘He is such an ignoble’

lit. He is a pig.

(cf. Watanabe (2019: 196))

For example, *Il pleut des cordes* in (58b) metaphorically means 'it is pouring'. This expression seems to correspond to a similar idiomatic expression in English, *it is raining cats and dogs*. In this respect, both French and English metaphorically depict the situation in which we have heavy rain.[18] However, this is not true of Japanese, whose corresponding expressions of (58) should be expressed in a similative manner with the underlined markers, as shown in (59).

(59) a. me-no tama-ga tobideru <u>hodo</u> takai (= (58a))
eye-GEN eyeball-NOM pop-out like$_{SIM}$ expensive
'to cost a bomb, to cost an arm and a leg'

b. baketu-o hikkurikaesita <u>youna</u> ame-da (= (58b))
bucket-ACC flipped-over like$_{SIM}$ rain-PRED
'It is raining cats and dogs'

c. kare-wa buta <u>no-youni</u> teiretu-da (= (58c))
he-TOP pig like$_{SIM}$ ignoble-PRED
'He is such an ignoble'

(cf. Watanabe (2019: 196))

As illustrated in (59), all the correspondences in Japanese are expressed in a similative fashion;

[18] One may argue that a possible corresponding expression in Japanese is *dosya-buri* 'a heavy rain', a type of N-V compound, in which the nominal word *dosya* (literally 'soil and sand' (cf. *dvandva*)) and the verbal word *-huri* 'falling' are combined. But this compound is actually not a type of metaphoric but a *mimetic* compound. The mimetics are sound-symbolic words that "represent sounds, shapes, texture, or something more abstract such as feelings" (Tsujimura (2005: 137)) and are productive in Japanese. The element *dosya* in this case describes the sound of a heavy rain.

that is, they are paraphrased with the use of similitudinal markers (e.g. *-hodo*, *-youna*, *-youni*). On the basis of these observations, Watanabe (2019) points out that there is a general tendency in French and Japanese. Whereas French prefers metaphors, Japanese prefers similes.

We argue that this tendency follows from the different degrees of lexical referentiality between French and Japanese. That is, in terms of the notion of lexical referentiality, the former seems low (i.e. more abstract), while the latter seems high (i.e. more concrete) (cf. Watanabe (2018, 2019)). In addition, English also belongs to the former because it shows the corresponding metaphoric expressions, as observed in (58). We presume that this proposal can be one of the possible explanations for the reason why Japanese modificational adjectival compounds need to be expressed explicitly in a similitudinal way. We will next briefly survey from a different point of view how such a consequence holds in relation to the notion of lexical referentiality.

We will specifically take up the nature of referring expressions in both languages and how they differ from each other. First of all, Gundel et al. (2019: 68) propose six specific cognitive statuses that are "relevant to the form of referring expressions in natural language discourse". They are hierarchically ordered as shown in (60), which is called *the Givenness Hierarchy*.

(60) The Givenness Hierarchy

in-focus > activated > familiar > uniquely identifiable > referential > type identifiable

(Gundel et al. (2019: 68))

The six statuses in the Givenness Hierarchy describe the appropriate use of demonstratives, articles, and pronouns in both languages. We will not explore these statuses in detail, but each status on the hierarchy is "necessary and sufficient for the appropriate use of a different form or set of forms" (Gundel et al. (2019: 77)). Let us consider this in Table 6.4, which summarises

the correlations between referring expressions and six cognitive statuses in English and Japanese.

Table 6.4. Correlation between linguistic form and highest required status

	IN-FOCUS	ACTIVATED	FAMILIAR	UNIQUELY IDENTIFIABLE	REFERENTIAL	TYPE IDENTIFIABLE
ENG	*it*	*HE*, *this*, *that*, *this* N	*that* N	*the* N	indefinite, *this* N	*a* N
JAP	Ø	*kare*, *kore*, *sore*, *are*, *kono*, *sono*	(*ano*?)	Ø N		

(Gundel et al. (2019: 77), cited from Table 5.1)

Notice that not all six statuses are required for Japanese in comparison to English. That is, only English has forms for uniquely identifiable (i.e. *the* N), referential (i.e. indefinite, *this* N), and type identifiable (i.e. *a* N) (see Gundel et al. (2019: §5.2) for more details in English). However, Japanese lacks distinct forms for definite or fully productive indefinite articles. Japanese uses bare nominals (i.e. Ø N) instead due to their wide distribution across these statuses, as represented in (61).[19]

[19] English also allows bare nominals for some cases such as mass nouns, generic and indefinite plurals, and some singular predicative uses, as illustrated in (i).

(i) a. There is *wine* in the refrigerator.
b. *Cats* make good pets.
c. The garden was swarming with *bees*.
d. Mary was elected *chair*.

(Hedberg et al. (2019: 113))

The bare nominals in (ia–c) could be referential in the Givenness Hierarchy, since "the speaker would be expecting the hearer to construct a representation of the particular portion of wine or group of bees, or to access an existing representation of the cat" (Hedberg et al (2019: 113)). In contrast, the bare nominal *chair* in (id) would not be referential since "the speaker would most likely be using the nominal only to evoke the role of chair rather than a specific referent" (Hedberg et al. (2019: 113)).

(61) a. Referential

itban hazime ni detekita bamen ga ano ee

first beginning at appeared scene NOM well eh

mannaka hen ni ***kuroi*** ***neko*** ga ugoite

center about at black cat NOM be.moving

'The scene that first appeared has a black cat moving in the center.'

b. Familiar and In Focus (and therefore Referential)

kingyo to ***kotori*** ga uta o utattari

goldfish and bird NOM song ACC sing

sorekara ***kingyo*** ga kurukuru mawattari

and.then goldfish NOM round.and.round turn

'The goldfish and the bird sing songs. And the goldfish turns round and round.'

(Hedberg et al. (2019: 114), cf. Gundel et al. (1993))

Both bare nominals in (61) function as referential. Incidentally, Russian represents almost the same distribution of referring demonstratives as that of Japanese. (see Gundel et al. (2019)).

Importantly, Gundel et al. (1993) argue, based on their corpus study, that bare nominals in Japanese (and Chinese) can have any status on the Givenness Hierarchy. In fact, whereas bare nominals in English generally cannot function as the anaphoric referents, those in Japanese can be used anaphorically. The anaphoric use of a demonstrative in English refers to a discourse referent mentioned in the previous discourse, as shown in (62) (italicising mine).

(62) a. The cowboy entered. {*This* / *that man*} was not someone to mess with.

(cf. Levinson (2004))

b. Three years ago, she took in four or five feral cats, and *those cats* had litters.

(Doran and Ward (2019: 239))

c. There are some really nice strawberries in the refrigerator but I was saving *those* for dessert. (Doran and Ward (2019: 240))

d. John insulted the ambassador. *That* happened at noon. (cf. Gundel et al. (2005))

e. Multiply 14 times 51, and then divide *that* by 17. (cf. Webber et al. (2003))

As explained by Doran and Ward (2019: §12.1.2), the demonstrative NPs in (62a, b) are used to refer to the antecedent entities: *the cowboy* in (62a) and *four or five feral cats* in (62b). The anaphoric use of demonstratives can also be observed in pronominal forms as in (62c–e). In (62c), *those* (i.e. plural demonstrative pronoun) is explicitly evoked by the prior mention of the *strawberries*. In (62d), *that* refers to the event denoted in the preceding clause (i.e. *John insulted the ambassador*). In (62e), *that* is the referent of the inferred product of 14 and 51. In this way, English uses alternative demonstratives properly. However, as shown in (63), Japanese bare nominals can refer to the anaphoric referents.

(63) a. keisatu wa genba ni ita otoko o taihosita.
police TOP spot in was man ACC arrested
otoko wa yougi o hininsiteiru.
man TOP suspicion ACC be.denying
'The police has arrested a man on the spot. The man denies the charges.'

b. gozyuudai dansei zyun-kyoozyu ga taisyokusita.
fifties man associate-professor NOM retired
zyun-kyoozyu no bengosi-wa […]
associate-professor GEN lawyer-TOP
'A male associate professor in his fifties has retired. His lawyer…'

In terms of referring expressions, there is a stark contrast between English and Japanese. The former uses the demonstrative properly, while the latter uses bare nominals even in the case of anaphoric expression.

This contrast can also follow from the notion of lexical referentiality. We claim that Japanese is a language in which the degree of lexical referentiality is at least higher (i.e. more concrete) than English. This claim can be strengthened by a well-known fact that Japanese can frequently elide grammatical arguments such as subjects or objects in discourse (cf. Kuno (1978)). That is, because of the high degree of lexical referentiality, Japanese in general need not express the referents explicitly, unless it is certainly necessary (e.g. when emphasising or introducing an alternative referent which is not overtly mentioned in the previous discourse; contrastive focus).

Now, let us return to the discussion of the present topic. Due to the high degree of lexical referentiality in Japanese, adjectival compounds are normally interpreted in an argumental relation. This naturally implies that modificational (i.e. non-argumental) adjectival compounds need to be distinguished from argumental readings by some other grammatical elements (e.g. certain morphological markers); otherwise, they might be interpreted in the same way as argumental ones. Similitudinal markers in Japanese are thus necessary for differentiating the modificational version of adjectival compounds from their argumental version. However, English does not alternate the form of adjectival compounds according to whether the intended reading is argumental or non-argumental.[20]

From a constructional point of view, the above discussion tells us that English tends to

[20] Along similar lines, from a contrastive point of view, Miyake's (2011) and Nishimaki's (2014, 2018) claims seem to be relevant here. They claim that Japanese is a 'morphology-preferring' language in comparison to English, which is a 'syntax-preferring' language. Such an argument is based on the analysis of realisation patterns of certain specific structures in English and Japanese (e.g. a predicate-argument structure, a head-complement structure, a modifiee-modifier structure). Following the framework of Competition Theory (cf. Ackema and Neeleman (2001, et seq.)), Nishimaki (2014, 2018) particularly focusses on nominal modification and discovers that the same nominal modification is realised as a 'phrase' in English, but as a 'word' in Japanese.

share the same form (i.e. syntax) with other expressions in the constructional network, whereas Japanese tends to distinguish the form (i.e. morphology) on the basis of the intended meaning. This generalisation further strengthens our arguments based on the *heterogeneous* Construction Grammar (i.e. form and meaning are essentially distinct) and seems appropriate to capture typological characteristics of English and Japanese (see also Hirose's (1995, et seq.) contrastive studies of English and Japanese).

6.4.4. Summary

This section has clarified the formal difference of adjectival compounds between English and Japanese and provided a possible explanation for the reason why modificational (i.e. non-argumental) adjectival compounds in Japanese must be expressed by certain similitudinal markers in order to obtain the intended reading. On the basis of Watanabe's (2019) analysis of French expressions, we have applied the notion of lexical referentiality to our own analysis. Due to the low degree of lexical referentiality, English does not need to represent a formal difference between argumental and modificational adjectival compounds, regardless of whether they are non-phrasal or phrasal. However, Japanese shows a clear contrast because of the high degree of lexical referentiality. In Japanese, argumental adjectival compounds are expressed in the same form as English (i.e. N-A), whereas modificational ones need a certain explicit similitudinal marker.

6.5. Summary of Chapter 6

In this chapter, we have taken up the following three related phenomena: (i) semantics of complex nominals; (ii) A-N synaesthetic expressions; and (iii) similitudinal adjectival compounds. The former two phenomena are directly involved in noun modification, whereas the third phenomenon is about the modifier itself. With respect to these three topics, we have

given some possible explanations.

First, regarding the semantics of complex nominals, Levi's (1975, 1978) remarkable contribution is that she regards three different classes of nominal modification as forming complex nominals. Levi's nine specific semantic predicates seem to cover almost all the endocentric complex nominals—exocentric ones are exceptions. In addition to her semantic explanation, we have further reviewed Nakau's (1994) sentence-level predicates and Gunkel and Zifonun's (2008) semantic roles of RAs in deverbal nominalisations and integrate them into Levi's account of semantic predicates. By proposing this, Levi's argument can be further developed and reduced to a more general semantic explanation.

Second, the relationship between synaesthetic expressions and the directionality hypothesis has been considered. We have proposed that there are neither synaesthetic nor metaphoric expressions regardless of whether or not they follow the directionality hypothesis. On this basis, however, we have pointed out that naturally interpretable crossmodal expressions still follow the directionality hypothesis. Since this fact seems quite irresistible by our intuition, we have recaptured the directionality hypothesis from a general modification principle. It has turned out that A-N expressions that follow the directionality hypothesis instantiate noun-based modification, whereas those contrary to this instantiate adjective-based modification. These two modification patterns are almost equivalent to our original two types of modifciational constructions (i.e. the predicating modifier construction for the former and the (blended) modifier construction for the latter).

Finally, we have focussed upon the characteristics of adjectival modifiers themselves, similitudinal ones in particular. Following Günther et al.'s (2018) discussion, we have observed argumental and non-argumental adjectival compounds and pointed out that Japanese should normally be represented with certain similitudinal markers (e.g. *-youna* 'like, as'). This morphological restriction is not observed in English. In order to capture such a realisational

difference between the two languages, we have introduced the notion of lexical referentiality. Although the discussion still needs to be further investigated and developed, we will leave this for future research.

On a final note, regarding noun modification by adjectives, we will simply touch on other problems, which are related to another phenomenon of nominal modification, postnominal modification. Postnominal modifiers have their own unique statuses and restrictions. For example, the class of adjectives in this type include predicative-only adjectives such as *asleep*, *involved*, *singing*, and *fond of* (Yasui et al. (1976: 107)), and *-able* adjectives (e.g. *the visible stars* vs. *the stars visible*), and compound determiner 'quantifier + empty nominal head' (e.g., *something new* vs. **new something*, *anyone wealth* vs. **wealth anyone*). The mainstream analysis for postnominal modifiers is the Relative Clause Reduction (RCR) transformation. However, there are some cases where this analysis cannot be applied. For example, *-able* adjectives, a type of modal adjectives, are not considered to be 'directly' transformed into the postnominal modifier, as illustrated in (64) (cf. *every student ~~that is~~ alive*).

(64) a. John met every candidate possible.

b. ?? John met every candidate that was possible.

c. John met every candidate ~~that it was~~ possible ~~for him to meet~~.

(Harris (2012: 163); cf. Larson (2000))

The mere RCR analysis does not seem appropriate, as shown by (64b), but the reduction including the *for-to* phrase (i.e. *for him to meet*) seems more correct, as indicated by (64c).

Furthermore, it has also been pointed out that the postnominal modifiers should be *stage-level predicates* (i.e. "one that holds at a particular time", e.g. *drunk*, *hungry*, *clothed*) but not *individual-level predicates* (i.e. "an individual in general with no particular reference to time",

e.g. *tall*, *Bolivian*, *smart*) (cf. Kratzer (1995)). However, although some adjectives seem to be apparently stage-level predicates, they cannot occur in postnominal position.

(65) a. the room now dark
b. * the room dark
c. * the now dark room

(66) a. an author now famous
b. * an author famous
c. * a now famous author

(Yasui et al. (1976: 107))

The adjectives *dark* and *famous* seem to be stage-level predicates but they need certain spatio-temporal adverbial modifiers (e.g. *now*) (cf. Yasui et al. (1976: 107)).

On the basis of these facts, how can the postnominal adjective be analysed? The fact that adjectives which can occur in postnominal position correspond to the predicative adjectives leads us to assume that postnominal modification is a type of predicating modifier construction based on our own analysis. We should take this class of adjectives into account in order to develop our analysis further.

Appendix to Section 6.3

Attested Counterexamples to the Unidirectionality Hypothesis

On the basis of (34) in Section 6.3, we recognise that there are ten source-target pairs amongst the five senses that go against the directionality hypothesis, as summarised in (67).

(67) Exceptional types against the directionality

a. SOUND: VISION, SMELL, TASTE, TOUCH

b. VISION: SMELL, TASTE, TOUCH

c. SMELL: TASTE, TOUCH

d. TASTE: TOUCH

In each type of (67), the left-hand types (SOUND (67a), VISION (67b), SMELL (67c), and TASTE (67d)) are the source domain senses, while the right-hand types are the target domain senses. For example, the source domain SOUND (left) in (67a) is mapped onto the target domain (right) VISION, SMELL, TASTE, and TOUCH. Again, these metaphorical mappings do not observe the directionality hypothesis.

We will present the results of a corpus study examining exceptional types of transferring against the directionality hypothesis. Data were collected from the BNC containing approximately 100 million words, and COCA containing approximately 450 million words of spoken and written varieties of standard American English from 1990 to the present day. The results of our corpus study are presented below (cited from Ishida and Namiki (2018b)). The paraphrases within a single quotation after each phrase is given by a native English informant.

(68) SOUND-VISION

a. *loud colours* 'ugly bright colours'

e.g. There were people with huge hats and loud colors and baggy pants [...]

(COCA)

b. *noisy image* 'statically, hard to read image'

e.g. To a computer, a sharp image and a noisy image can look very much the same [...] (COCA)

c. *quiet green* 'pleasing shade of green'

e.g. Here it ran between quiet green glades [...] (BNC)

(69) SOUND-SMELL

a. *loud perfume* 'unpleasant strong perfume'

e.g. [O]ne student came in with a very loud perfume [...] (COCA)

b. *loud stink* 'strong stink'

e.g. Barkley raised a loud stink when Malone was left off the starting team.

(COCA)

c. *quiet smell* 'almost unnoticed smell'

e.g. There was a quiet smell of money about Robert, his business throve.

(BNC)

(70) SOUND-TASTE

a. *loud taste* 'unsophisticated taste'

e.g. Sally clasped in the arms of some character with a loud taste in shoes.

(BNC)

b. *quiet taste* 'unobtrusive taste'

e.g. Quiet taste, comfort and thoughtful service. (BNC)

c. *silent bitterness* 'anger that is not spoken'

e.g. Silent bitterness replaced the earlier adulation of the Führer. (BNC)

(71) SOUND-TOUCH

a. *whispering caress* 'barely touching caress'

e.g. [H]e groaned against her ear, his breath a whispering caress. (BNC)

b. *purring caresses* 'cat-like, caresses, maybe with back of hand'

e.g. [T]he soft purring caresses and total availability of the bar-girls must have seemed irresistible. (BNC)

(72) VISION-SMELL

a. *bright flavour* 'a flavour that is sweet or spicy'

e.g. Best: Try a sodium-free squirt of fresh lemon juice for a tart, bright flavor. (COCA)

b. *sharp smell* 'potentially unpleasant fermented smell'

e.g. The sharp smell of the eucalyptus surrounds us. (BNC)

c. *white smell* 'maybe a clean smell'

e.g. His sheets have the white smell of fear. (BNC)

(73) VISION-TASTE

a. *bright taste* 'spicy interesting taste'

e.g. [O]ur Tart' n' Tangy Fro-Yo, but with the bright taste of lemon. (COCA)

b. *brilliant taste* 'powerful good flavour'

e.g. [S]he strolled the aisles in search of that new, fresh, brilliant taste. (COCA)

c. *green taste* ‘grassy healthy taste’

e.g. [H]e found me still unable to comprehend something as obvious to him as the green taste of beer. (COCA)

(74) VISION-TOUCH

a. *bright heat* ‘almost unpleasant heat’

e.g. She had left her a new, bright heat in her, something fierce [...] (COCA)

b. *bright pain* ‘sharp and acute pain’

e.g. Bright pain in her back that vibrates down to the soles of her feet. (COCA)

c. *pale touch* ‘a weak touch’

e.g. [H]is fingers a pale touch on my elbow, his breath a flower scent too near. (COCA)

(75) TASTE-TOUCH

a. *sweet touch* ‘kind sympathetic touch’

e.g., He felt the boy’s concerned hand on his. This sweet touch from the world. (COCA)

b. *sweet caress* ‘pleasant loving caress’

e.g. He let himself get lost in her touch, in the sweet caress of her voice. (COCA)

c. *sweet pain* ‘pain of a lost love’

e.g. A light, sweet pain cut through me [...] (COCA)

(76) SMELL-TASTE

a. *pungent crispness* ‘sharp fermented but pleasant taste’

e.g. Brahms' violin concerto ripening towards its second movement, the pungent crispness of gin as it swamped her tongue. (BNC)

b. *rancid taste* 'spoiled taste'

e.g. [B]ut he can't drink it, he's afraid of its rancid taste. (COCA)

c. *aromatic taste* 'taste accomplished by smell'

e.g. [I]t deserved the smokily aromatic taste of amber scotch [...] (COCA)

(77) SMELL-TOUCH

Not found

Indeed, there are many exceptional types of English metaphorical transfers across sensory modalities. The findings here are similar to the results of Japanese data in Muto (2015). Muto (2015) also attempts to collect exceptional data and argue that there is no directionality in synaesthetic metaphors in Japanese. Noticeably, we cannot find any type of SMELL-TOUCH, as represented in (77). The reason why this type is unfound needs a reasonable explanation. We can speculate that these two senses are so close that they cannot be separated from each other as distinct lexical concepts. That is, tasting something inevitably involves its perception, smelling.

Chapter 7

Conclusions and Prospects

This thesis has been an exploration of some apparently peculiar or idiosyncratic phenomena in noun modification by adjectives. Through the course of our investigations and arguments based on the theory of (heterogeneous) Construction Grammar, we have proposed a general principle and revealed the fact that there is no 'genuine' deviation beyond this; rather, we cognitive-semantically resolve such apparent (either semantic or grammatic) peculiar behaviours of both predicating and non-predicating adjectives with some extra-constructional factors. Furthermore, we have focussed on the morpholexical status of denominal adjectives in English and examined what kind of constructional properties such derivatives have.

In Chapter 1, we have reviewed some theoretical issues in the theory of Construction Grammar. Specifically, taking a *homogeneou*s Construction Grammar approach (i.e. constructions are regarded as full Saussurean signs) to certain peculiar or marked expressions such as *coercions* yields some problems, because it must presume as many constructions as the number of its use and hence the superfluous and undesirable increase of constructions. This necessitates us to take a different constructional theory, i.e. a *heterogeneous* Construction Grammar, to effectively bridge the gap between the morphosyntax and semantics of the relevant marked expressions. This approach is uncommon or unacceptable for some constructionists because it regards the internal structures in a construction as consisting of independent form and meaning structures. However, I argue that, in peculiar or marked constructions such as coercions, unless the constructions in question are highly conventionalised, certain specific forms and meanings are paired 'online' (i.e. at an interpretive level) by inheriting each particular constructional properties or by blending some default constructions. On the basis of this theoretical background, we have raised overall questions, as listed in (1).

(1) Overall Questions

a. What is the general principle underlying noun modification by adjectives?

b. Can such a principle explain some other peculiar phenomena, too?

c. In such cases, what kind of factors are essentially involved?

d. How can the adjectival status be defined?

Throughout this thesis, we have attempted to answer these questions from a Construction Grammar point of view. Before presenting our answers, let us summarise what we have discussed in this thesis.

In Chapter 2, we have introduced some important ideas and terminologies, reviewing what has been observed in the previous studies. On the basis of Sullivan's (2007, 2013) theoretical framework, we have discussed how she integrates the two theoretical models, Frame Semantics and Construction Grammar. Although Sullivan's two types of modifier construction seem to have been proposed only for examining the (non-)metaphoric A-N expressions (e.g. *bright student*, *mental exercise*), her generalisation is influential and reasonable enough to be applicable to other special cases. She does not seem to clearly define these constructions and so we have redefined them, as illustrated in (2).

(2) Two Types of A-N Construction

a. Predicating modifier construction:

The adjective predicates a property of the referent designated by the noun.

b. Domain modifier construction:

The adjective subcategorises the reference (i.e. semantic domain) indicated by the noun.

Notice that the above two types are not actually novel ones but basically inherit the core idea of what has been elucidated so far in the relevant field. Our discussion throughout the thesis has largely relied on these two types of construction. Our focus has been not only on the property of each construction but also on their constructional relationships. The two A-N constructions in (2) are considered to be a significant key to resolving certain peculiar cases that have been regarded as particularly exceptional.

Based on the two A-N constructions in (2), we have proposed the following general principle of noun modification by adjectives.

(3) The General Principle of Noun Modification by Adjectives

Adjectives in noun modification must be construed in such a way that they intrinsically preserve their constructional properties as modifiers.

a. Even in some semantically or grammatically peculiar cases, the principle is satisfied at an interpretive level.

b. In such cases, the constructional properties of modifiers are merely covert and extra-constructional factors are heavily involved.

We contend that this generalisation must be retained in most cases of A-N expressions at an interpretive level. Let us review how the principle in (3) can be applied to certain peculiar cases in noun modification by adjectives.

In Chapter 3, we have taken up a semantically peculiar relation between predicating adjectives and the head nouns in attributive use. We have observed that although the adjectives investigated there are all of the predicating-type and the formal combination of the adjectives and the nouns follows the modifier-head construction, their predicating functions are not maintained at first glance. Even though the semantic relationship between the constituents

appears strange in some cases, we have argued that the constructional property of the adjectives (i.e. predicating a property of the referent designated by the head noun) is satisfied at an interpretive level by the extra-constructional factor *metonymy*. Specifically, we have clarified that the adjectives in question turn into domain adjectives (i.e. subcategorising function) at an interpretive level. In fact, the predicating adjectives themselves do not intrinsically change their properties. The predicating function is actually retained by the effect of *metonymy*. Because there is no appropriate modifying target in the meaning structure of the head nouns, the adjectives are interpretationally required to have a subcategorising function like domain modifiers. For examples, *bright taste* is an instantiation of this, in which the modification in form is invariant but that in meaning differs from the original property (i.e. predicating; property-denoting). The same analysis can be applied to the case of Japanese, too. In this respect, both English and Japanese are equivalent.

The most important finding in Chapter 3 is that not only the head nouns but also the adjectives *per se* show a kind of 'coercion' (cf. type-shifting; predicating to domain-identifying reading). This point has been hardly noted in the pertinent literature, as far as I know. As mentioned in Chapter 1, when there is a certain form-meaning gap in A-N constructions, it tends to be attributed to the properties of head nouns (i.e. Selective Binding, e.g. *a bright bulb* vs. *an opaque bulb*) but not to those of modifiers, i.e. adjectives. We have discussed these cases including other examples such as phrasal names (e.g. *sick room*) and transferred epithets (e.g. *he smoked a sad cigarette*). We have then concluded that A-N constructions in which a predicating adjective is coerced into a domain adjective are instantiations of a third type of modifier-head construction, *the blended domain modifier construction*. In this respect, this study provides a new and convincing way to deal with intricate semantic problems of 'adjectival coercion' in the theory of Construction Grammar.

In Chapter 4, we have investigated the grammatically peculiar behaviour of non-

predicating denominal adjectives (i.e. relational adjectives (RAs)) and their corresponding modifiers in Japanese (i.e. N (+ classifier) + *-no*). We regard examples such as *those drawings are monochromatic* as instantiations of this, in which the modification in form differs from the canonical attributive-only use but that in meaning is invariant even in predicative use (i.e. subcategorising; type-identifying). In this case, too, even though the apparent form of the modifier-head construction is not maintained (i.e. non-predicating adjectives in predicate position), we supplement the concept of the head noun at an interpretive level (i.e. the elliptical use of the head noun). This means that the adjectives themselves do not turn into 'true' adjectival predicates or property-denoting adjectives. Thus, the domain modifier construction is retained even in predicate position. Through the analysis, we have revealed that the constructional property of the adjectives (i.e. subcategorising the type of the head noun) is interpretationally retained by the effect of *contrast*. Furthermore, we have explained that the notion of contrast can be represented either contextually or lexically. The latter in particular is evoked by prefixes (e.g. *mono-*, *non-*) and combining forms (e.g. *-cidal*, *-phobic*) in English and classifiers (e.g. *-sei* 'made of', *-kei* 'type') in Japanese.

The research results of Chapters 3 and 4 reveal that the two types of modifier constructions in (2) are always retained, even if the relevant A-N expressions appear to be idiosyncratic semantically or grammatically. This consequently indicates that the constructional properties of adjectives in noun modifying expressions are essentially retained at an interpretive level, exactly as expected from our general principle.

In Chapter 5, we have analysed the constructional properties of domain modifiers (i.e. denominal adjectives) in English. The RA-N construction, for example, has long been said to have the same meaning as the N-N construction (e.g. *industrial output = industry output*). The apparent nominal properties of English RAs give us an impression that RAs are 'nominals'. However, by employing a striking test proposed by Nikolaeva and Spencer's (2020), so-called

the *Base Noun Modifiability Property*, we have examined whether denominal adjectives, *-en* adjectives (a type of RA) in particular, are truly constructionally (i.e. lexically) different from or still a part of the base word. Investigating the diachronic and morphological statuses of the suffix (i.e. *-en* is [–Latinate]), we have discovered that they are in some cases constructionally (cf. morpholexically) the same as their base nouns (i.e. *-en* adjectives are not true derivatives but still remain as inflected words in some cases for some speakers). Moreover, on the basis of Nikolaeva and Spencer's (2020) argument, we have argued that while English RAs formed with [+Latinate] suffixes normally belong to the class of adjectives, RAs in other languages such as Uralic and Evenki are the paradigm of the base nouns (i.e. RAs in these languages belong to the class of nouns; namely, they are morpholexically mixed categories). English *-ed* adjectives (i.e. *-ed* is [–Latinate]) are attributed to the latter type (i.e. a type of mixed category). Our argument has been strengthened by the parallel observation of deverbal nominals (i.e. *-ment*, *-ation* vs. *-ing*).

Chapter 5 has further defined the canonical categorial status of adjective and illustrated the entire constructional relationships of noun modification by adjectives. In addition to the two types of A-N constructions (i.e. the predicating and the domain modifier constructions) in (2), we have included the blended domain modifier construction as a third type of A-N construction. The relevant discussion provides important theoretical implications for the field of morphology of adjectives.

We are now in a position to provide our answers to the overall questions raised in (1). For the first question in (1a), we have proposed the general principle of noun modification by adjectives, as stated in (3). Because of this principle, we could clarify how we conceptually resolve certain peculiar modificational phenomena. This can be an answer to the question in (1b). In such cases, as an answer to (1c), certain extra-constructional factors such as *metonymy* and *contrast* are heavily involved. These factors are not only for the present topic

but also for other idiosyncratic phenomena (e.g. metonymous NPs, ellipsis phenomena). For the last question in (1d), we have discussed this in Chapter 5 and identified predicating adjectives as canonical adjectives because the properties of domain adjectives can be represented by other categorial elements such as nouns, verbs, adverbials, prepositionals, phrasal, and even full clauses. Exploring the properties of adjectives from a constructional point of view, this study has demonstrated both cognitive-semantic and morpholexical characteristics of the category Adjective.

In Chapter 6, we have dealt with some related phenomena in noun modification by adjectives: (i) semantics of complex nominals; (ii) A-N expressions in synaesthesia; and (iii) similitudinal adjectival compounds. This chapter has provided some possible explanations for these topics. We have also slightly touched on the issue involved in postnominal modification. The issues discussed in this chapter seem to interest us in many respects.

Last but not least, we will mention some prospects of this study. In this thesis, we have attempted to extend Sullivan's (2013) two types of modifier-head constructions and elaborated on them to cover other types of noun modification by adjectives. Through our own analysis, we have obtained many novel findings and theoretical implications. In particular, as far as I know, such a constructional approach towards the modifier itself (i.e. the category Adjective) has never been proposed in detail in the previous studies. Although we still have many remaining issues, we hope that this study could resolve the intricate problems of adjectival coercion and the category Adjective and provide some new and convincing implications for other problems. For instance, Levi (1978) in fact focuses only on 'endocentric' nominals and does not take into account other types of nominals such as synecdochical (e.g. *peg leg*, *blockhead*, *birdbrain*, *razorback*, *cottontail*), appositional (e.g. *pine tree*, *queen bee*, *satellite nation*, *professorial friends*, *mammalian vertebrates*, *sports activities*), and coordinate nominals (e.g. *secretary-treasurer*, *king-emperor*, *fighter-bomber*, *broiler-oven*) (Levi (1978: 6, 93–94),

cf. Olsen (2001, 2004), Bauer (2008, 2017), Benczes (2014), Shimada (2013, 2016)). The latter two nominals are particularly known as 'exocentric' compounds. These examples would be our next research targets. Though we have no clear idea of how to deal with them at present, our analysis and findings in this thesis may enable us to tackle them in a significant way. I conclude by saying that there is always a general principle which governs the creative use of so-called adjectives in human language.

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