

English *No Matter* Construction: A Construction-based Perspective*

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Abstract

The expression *no matter*, combining with an interrogative clause X, expresses ‘it doesn’t matter what the value is of X’ and displays many syntactic and semantic peculiarities. To better understand the grammatical properties of the construction in question, we investigate English corpora available online and suggest that some of the irreducible properties the construction displays can be best captured by the inheritance mechanism which plays a central role in the HPSG and Construction Grammar. We show that the construction in question has its own constructional properties, but also inherits properties from related major head constructions.

Key words: no matter, construction-specific, free ranger, exhaustive conditional, sluicing, copula deletion

1 Introduction

English employs many different types of the so-called ‘free-range’ constructions as illustrated in the following (Culicover 1999):

- (1) a. No matter [what it costs], we will buy the book.
b. Regardless of [what it costs], we will buy the book.
c. Despite [what it costs], we will buy it.
d. Notwithstanding [what it costs], we will buy the book.
- (2) a. [Whatever it costs], we will buy the book.
b. [Whether it costs a lot or not], we will buy the book.

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Syntactically, those in (1) are different from those in (2) in that in the former the subordinate clause is a complement of the expression *no matter* or prepositions like *regardless of* or *despite* whereas the clause in the latter functions rather as an adjunct.¹ All these examples contain a bracketed subordinate clause, and in terms of meaning each all implies that the value of the clause can be allowed to range freely. To put it in a different term, the free range subordinate constructions semantically take scope high in the main clause and place restrictions on the domains of operators in their scope. These subordinate constructions, as noted by Rawlins (2008), thus basically convey ‘indifference’ in the sense that it does not matter what the book costs. This in turn means that the result expressed by the main clause will ensue irrespective of the content of the concessive subordinate clause.

In this paper, among these free range expressions, we focus on the properties of the *no mater* construction (henceforth NMC), while referring to the other free range constructions when necessary. In particular, we will show that many of the grammatical properties that the NMC carries are quite unpredictable and unique in many respects. We then try to offer a construction-based analysis in which the construction inherits general properties from its supertype while having its own constructional constraints leading to its irregularities (cf. Kim and Sells 2008, Michaelis 2011, Sag et al. 2003).

2 Distributional Possibilities and Internal Structure

2.1 Distributional Possibilities

As noted in Quirk et al. (1985) and others, the NMC can take the full range of an interrogative clause as seen from the following attested examples:²

- (3) a. Remember that **no matter who** is President, the House and Senate are likely to retain Republican majorities. (TIME CORPUS 2004-06-21)
- b. **No matter which option** you select, you’ll be proud of the results. (COCA 2006 MAG SouthernLiv)
- c. **No matter what** you look like, it doesn’t matter. (TIME CORPUS 2001-09-15)
- d. **No matter when** we are living, we have to have a golden age, it will always be in the past, and it will seem irretrievable. (COCA 1991 ACAD Raritan)

¹Huddleston and Pullum (2002: 761) name such constructions ‘exhaustive conditional’, while Rawlins (2008) classifies these into three main types, ‘alternative unconditional’ ((2b)), ‘constituent unconditional’ ((2a)), and ‘headed unconditional’ ((1)).

²The corpora we use in this research include 410 million words COHA (Corpus of Historical American English), COCA (Corpus of Contemporary American English), 100 million words BNC (British National Corpus), and 100 million words TIME Magazine Corpus of American English. All of these are freely available online.

- e. **No matter where** I am, prayer, study and reflection are a large part of my life. (TIME CORPUS 2004-12-13)
- f. That Lincoln's position, like Gorbachev's, was that a union, **no matter how** it was formed, can not be abandoned. (TIME CORPUS 1990-04-16)
- g. **No matter why** she was there, the next morning, while he was golfing, she teed up 1,000 of room service. (TIME CORPUS 2003-12-19)

The possibility of having *else* in such examples indicates that examples like (3) are interrogatives, rather than relative clauses. This is evidenced by the data in (4): the expression *else* can occur in the indirect question as in (4a) or in the complement clause of *no matter*, but not in the non-interrogative free relative clause.

- (4) a. I tried to find out **what (else)** he can do with that degree.
- b. I ate **what (*else)** he found on the plate.
- c. No matter **what else** has happened, there are reasons to distrust machines.

The NMC basically functions as a modifier to the main clause, restricting its possible range. The modifying property can be observed from its distributional possibilities in sentence initial, medial, or final position:

- (5) a. **No matter what anyone says**, there is just no attractive way to extract information from people who don't want to give it. (TIME MAGAZINE CORPUS 2004-01-17)
- b. The long-run average, **no matter who is President**, is just 5.6%. (TIME MAGAZINE CORPUS 2000-08-28)
- c. We can start by using plain and honest language in discussing a death with our kids, **no matter how young they are**. (TIME MAGAZINE CORPUS 2000-03-06)

These distributional possibilities indicate that the NMC is a subordinate clause modifying the main clause though its internal structure can be different from other subordinate clauses.

In terms of selectional and distributional possibilities, other free rangers can also select an interrogative clause and modify a main clause:

- (6) a. **Regardless of** when it plays, 2 1/2 hours is a long time for children to sit still. (TIME MAGZINE CORPUS 1994-11-02)
- b. **Despite** where we are offensively, I believe we can come out of this. (COCA 1996 NEWS NewYorkTimes)

- c. **Notwithstanding** what you say about non existence, all your play on words makes no difference about the thing talked of. (COHA 1820 NF SeriesLettersIn)

However, differences come from the fact that unlike these free rangers, *no matter* cannot occur with a canonical NP unless it is a ‘concealed question’ NP:³

- (7) a. *No matter the weather, Bob was going to school.
- b. Regardless of the weather, Bob was going to school.
- c. Despite the weather, Bob was going to school.
- d. Notwithstanding the weather, Bob was going to school.

As seen in (7a), the canonical NP *the weather* cannot be the complement of *no matter*. However, as the attested COCA examples in the following show, concealed question NPs like *the time* or *the reason* can serve as its complement:

- (8) a. **No matter the reason**, Karris confession is now being written off as a hoax. (COCA 2006 SPOK CNN_Showbiz)
- b. **No matter the time**, there is no pause button for the talk. (COCA 2005 NEWS NewYorkTimes)
- c. It is also dangerous and self-defeating to believe that every injustice is intolerable, **no matter the method**. (COCA 1990 ACAD Academic)

Since the clause introduced by *whether* and *if* can function as an indirect question, we expect that the clause may combine with *no matter*. Our corpus search also meets the expectation:

- (9) a. My mother has a saying that you should always be graceful and grateful, **no matter whether** you are five or fifty. (COCA 2010 MAG TownCountry)
- b. We’ll finish third **no matter if** we win or lose these last games. (COCA 2009 NEWS Chicago)

³‘Concealed question’ NPs are those that can be interpreted as questions when they are complements of question-embedding verbs as in the following:

- (i) a. Kim has forgotten the price of the book. (=Kim has forgotten what the price of the book is.)
- b. Kim knows the time of meeting. (=Kim knows what the time of the meeting is.)

For detailed discussion, see Grimshaw (1979).

An intriguing fact we observe from the corpus search is that *no matter* can also combine with a finite CP (cf. Nakajima 1998, Culicover 1999, Fodor 2001). Consider the following attested examples:

- (10) a. I like the maleness of him, **no matter that** he's ugly.
 b. But **no matter that** he raised his voice, her expression remained unmoved.

We take such cases as a different construction since the meaning of the *no matter* clause here is not 'free range' but interpreted as a 'concessive' construction, as evidenced from their paraphrase possibilities:

- (11) a. I like the maleness of him, even though he's ugly.
 b. Even though he raised his voice, her expression remained unmoved.

The other free rangers with similar meanings do not license a finite CP or S as their sentential complement even though they freely occur with an NP:

- (12) a. Regardless of $\left\{ \begin{array}{l} \text{his proof that the proposition is true} \\ \text{*that the proposition is true} \end{array} \right\}$, people didn't accept the claim.
 b. Despite $\left\{ \begin{array}{l} \text{his proof that the proposition is true} \\ \text{*that the proposition is true} \end{array} \right\}$, people didn't accept the claim.
 c. Notwithstanding $\left\{ \begin{array}{l} \text{his proof that the proposition is true} \\ \text{*that the proposition is true} \end{array} \right\}$, people didn't accept the claim.

The *no matter* construction with the finite CP declarative clause can even function as an independent clause, as also noted by Rawlins (2008):

- (13) a. **No matter that** everyone in the business still calls them girls. (TIME MAGAZINE CORPUS 1991-10-07)
 b. **No matter that** your great days are over, **that** you are now as redundant as a will-o'-the-wisp! (COCA 2006 FIC BkSF:PtolemysGate)

What this implies is that the *no matter* with a finite S is a fixed sentential construction with its own force, expressing to list things that do not matter or providing explanation for unconditional or 'concessive' claims.

Based on these observations, we assume that there are two different types of the NMC, one combining with an interrogative clause with an unconditional meaning

and the other expressing a concessive meaning with a declarative S or CP. In this paper, we focus on the former otherwise noted.⁴

2.2 Relatedness with the Verb and Noun Counterpart

The behavior of *no matter* is unpredictable either from that of the verb *matter* or from the noun *matter*.

Let us consider the main properties of the verb *matter*. The verb *matter* is canonically used as a pure intransitive verb selecting no object:

- (14) a. My mother told me. His marrying that other person was a terrible mistake, but it happened a long time ago, and it doesn't **matter** anymore. (COCA 2003 ACAD CATOJournal)
- b. Faile, on the other hand, had donned a complacent smugness that was worrisome. Perrin went on anyway. The reasons don't **matter**. (COCA 2002 ACAD CATOJournal)

The verb *matter* can sometimes be used with an optional PP[*to*] complement:

- (15) a. These days, though, what may **matter** most **to businesses** is not the absolute value of the euro but its stability. (COCA 2010 NEWS NYT)
- b. I must be here so that I can instill in him that autism doesn't **matter to those who love him**. (COCA 2009 MAG SatEvenPost)

There are cases where the verb *matter* at first glance seems to take a clausal element including an interrogative as its complement, but a closer look tells us that the clausal element is in fact extraposed to the sentence final position:

- (16) a. Gloria, we're Democrats. It doesn't **matter** [that the kid was Asian]. (COCA 2002 FIC NewEnglandRev)
- b. NASA could have saucers anywhere in the world in less than ten minutes; it didn't **matter** [if he went to Rorida or anywhere else]. (COCA 2010 FIC Bk:SpaceAliensTaught)
- c. This kind of democratic wave is irresistible. It does not **matter** [whether the Nationalist Party accepts the wave or is forced to do so]. (COCA 2004 ACAD CATOJournal)
- d. It does not really **matter** [where the factories are, as long as U.S. engineers can reach them]. (COCA 2010 ACAD MechanicalEng)

⁴As hinted by Nakajima (1998), we could, of course, collapse these two into one type of construction, but following Rawlins (2008), we at this point differentiate these two.

- e. It doesn't **matter** [what industry you're in]. (COCA 2010 NEWS SFC)
- f. It doesn't really **matter** [who we play], as long as we are in the play-offs. (COCA 2010 NEWS Houston)

The extraposed property can be checked with the fact that we cannot replace the subject *it* here with a canonical NP:

- (17) a. ***The issue** doesn't matter that the kid was Asian.
- b. ***The decision** doesn't matter if he went to Rorida or anywhere else.

The expression *no matter* is also different from the noun *matter*. The noun *matter* behaves differently from *no matter* in many respects. One obvious difference is, as noted in Culicover (1999), that the NP *no matter*, in which *no* functions as a specifier, does not take an interrogative clause:

- (18) a. It is no matter that the mayor is a Republican.
- b. *It is no matter what party the mayor belongs to.

But when the noun *matter* is used in a different context with other than *no*, *matter* can appear with an interrogative clause:

- (19) a. What he does at school is not an important matter.
- b. It is not an important matter what he does at school.

Once again note that such a case cannot combine with an interrogative clause and functions as a free ranger:

- (20) a. No matter who the mayor is, the city will be in deficit.
- b. *Not an important matter who the mayor is, the city will be in deficit.
- c. *No question/problem who the mayor is, the city will be in deficit.

The copula omission also tells us that *no matter* is different from the construction introduced by the verb or noun *matter* (cf. Culicvoer 1999):

- (21) a. What the time *(is) simply doesn't matter.
- b. It is no matter that the mayor *(is) a Republican.

As noted here, in both cases no copula ellipsis is licensed.

As we have seen here so far, the expression *no matter* is different from its verb and noun counterparts in many respects. In addition, it displays certain differences from other rangers too.

3 Ellipsis in the *No Matter* Construction

3.1 Copula and Aux VP Ellipsis

In the NMC, we observe that the verb form of BE is frequently omitted when the conditions on the subject are satisfied. However, there are certain constraints on the subject to license its omission. For example, as given in (22), the subject must be a definite NP: it cannot be a pronoun or proper N, an indefinite generic, a quantified NP, or a demonstrative NP (cf. Haspelmath 1997, Culicover 1999):

- (22) a. No matter how confused **the student** (is), the teacher will not explain something twice.
- b. *No matter how confused **he**, the teacher will not explain something twice.
- c. *No matter how confused **a student**, the teacher will not explain something twice.
- d. *No matter how confused **every student**, the teacher will not explain something twice.
- e. *No matter how confused **that student**, the teacher will not explain something twice.

Our corpus search also supports this claim:

- (23) a. **No matter what the outcome**, it's the anticipation, the unknown, that makes everyone so nervous. (TIME 2000-09-04)
- b. When you're in the service, I mean, **no matter who the president**, I mean, we're still going to be doing what we do. (COCA 2004 SPOK NPR ATC)
- c. StaffFan spirit arrives **no matter where the site**. (COCA 2006 NEWS Atlanta)

We take this definite and generic condition on the ellipsis in the NMC is due to its interaction with the 'copula' ellipsis in English. For example, as noted in the literature, English comparative correlative construction also licenses the copula ellipsis with similar constraints on the subject:

- (24) a. The higher the indicator, the greater the economic pain (is) out there. (COCA 2008 MAG Fortune)
- b. The more in the centre you are of any line, the better placed you *(are) to get involved. (BNC CEF 2247)

However, note that what can be elided is not just the auxiliary verb *be*, but we can elide the entire VP including the copula, as noted by Culicover (1999: 115):

- (25) a. no matter how angry at Robin the assistant coach might be,...
- b. no matter how angry at Robin the assistant coach,...
- c. no matter who might be angry at Robin,...
- d. *no matter who angry at Robin,...
- e. no matter who the assistant coach might be angry at,
- f. *no matter who the assistant coach angry at.

If we allow only the copula *be* to be elided, examples like (25d) or (25f) might be acceptable contrary to the fact. This seems to be a difference from the copula ellipsis in correlative comparatives like (24). In this sense, the possibility of omission with the copula *be* is much flexible in the NMC.

3.2 Sluicing

Since *no matter* combines with an interrogative clause, the construction may be sensitive to the so-called sluicing which applies to interrogatives (cf. Ginzburg and Sag 2000, Merchant 2011). In fact, corpus examples give us many instances of sluicing:

- (26) a. We're definitely a great defense. We prove it every Sunday, **no matter what**. (COCA 2010 MAG SportingNews)
- b. So long as ever I live, I'll never place my whole trust in anybody – **no matter who**. (COHA 1949 FIC CutlassEmpire)
- c. And again, doctors could always abuse patients **no matter where**. (COCA 2001 SPOK NPR Science)

As long as the sluiced expression is a sentential constituent, we have legitimate cases:

- (27) a. All whiskey, **no matter how expensive**, just tastes like burning. (TIME CORPUS 2000-04-24)
- b. A wounded animal is dangerous, **no matter how small**. (COCA 2001 FIC AntiochRev)
- c. Instead, pat yourself on the back for what you have achieved, **no matter how humble**. (COCA 2008 MAG HarpersBazaar)

- d. To each work, **no matter how disparate in content and style**, Oppens brings both a formidable technique and an unerring ear for seductive sonority. (TIME CORPUS 1993/03/08)

As in canonical sluicing, we do not have sluicing with *whether* or *if* in the NMC:

- (28) a. You should always be graceful and grateful, no matter whether *(you are five or fifty).
- b. We'll finish third no matter if *(we win or lose these last games).

4 An Analysis: Interactions between the Lexicon and Constructions

4.1 Internal and External Syntax

Before we provide an analysis for the NMC, consider the other types of free ranger or unconditional constructions:

- (29) a. Whether John comes to the party or not, it will be fun.
- b. Whoever comes to the party, it will be fun.
- c. Regardless of who comes to the party, it will be fun.
- d. No matter who comes to the party, it will be fun.

As noted earlier, semantically, as noted by Rawlins (2008), all these are similar in that they are unconditional in the sense that the consequent 'main' clause is entailed irrespective of the antecedent 'free range' clause. For example, there is an 'unconditional' semantic relation between the two situations $s1$ (expressed by the antecedent clause denoting a question) and $s2$ (expressed by the main clause). Following Rawlins (2008), we take the antecedent here denotes not a proposition but an 'issue' that encodes a set of alternatives, corresponding to the possible answers to the question.⁵ For example, (30a) can be represented as (30b):

- (30) a. No matter what Dan cooks, he will win the cooking contest.
- b. $[\lambda P \exists x[\text{dish}(x) \ \& \ P=\text{cooks}(d,x)] \Rightarrow [\text{win}(d,c)]]$

This in turn means that the exhaustive conjunction of conditionals will be determined by the alternatives to the *wh*-word:

- (31) a. If Dan cooks $x1$, he will win the cooking contest. &

⁵This differentiates *if*-conditionals from unconditionals in that the antecedent of the *if*-conditional denotes a proposition while that of the unconditional expresses an issue because of its semantic contribution of the interrogative clause. See Rawlins (2008) for further discussion.

the status of *no matter*. We take *no matter* as a complex word: the specifier *no* cannot be replaced by any other negative words (e.g., **little matter*), the two words cannot be separated by any other expression (**no important matter*), no conjunction of the specifier or head noun is allowed (**no and little matter*, **no matter and issue*). In addition, the expression *no matter* selects an interrogative clause as its complement as specified in the following:

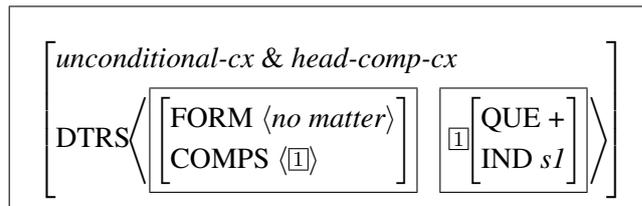
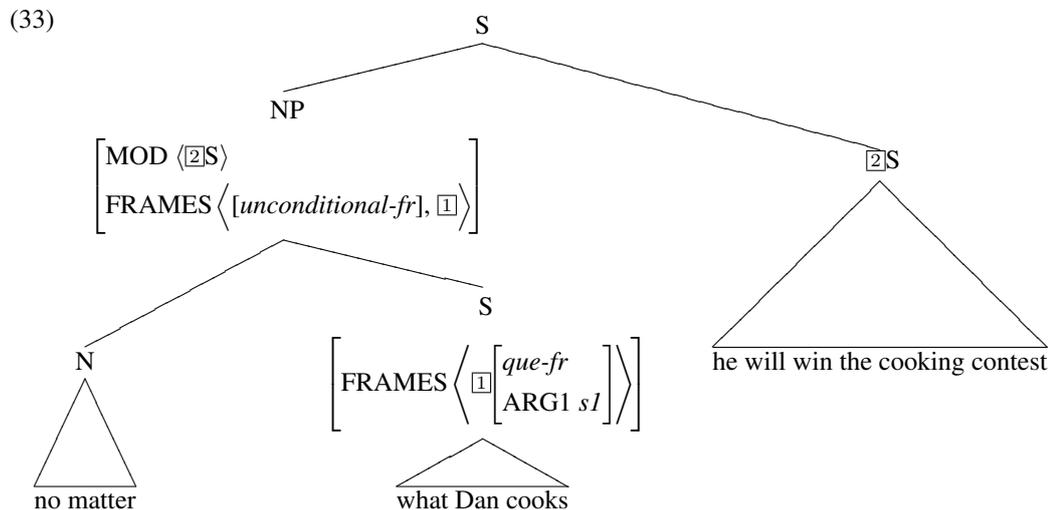


Figure 2: NMC in English

Since this construction is a subtype of the *unconditional-cx*, it will inherit the constraints in Figure 1. In addition, as a type of *head-complement cx*, the head *no matter* selects a sentential complement denoting a question whose value can be satisfied by any alternative value. The construction, inheriting the properties of its supertype construction *unconditional-cx*, will then generate a structure like the following:



The structure correctly describes the fact that the NMC functions as a modifier to the main clause.

Note that we do not place any restriction on the structure of its complement. The only requirement is that it denotes a *question*. This means that any well-type of non-inverted question-denoting sentence can appear here. For example, the

interrogative clause also licenses a long distance dependency as observed from the following naturally occurring data:

- (34) a. No matter how good you think the music is, it gets a lot of people's attention.
b. No matter how good they say you are, always keep working on your game.

4.2 More on the Interactions with Other Constructions

As we have seen earlier, the NMC also involves sluicing. This is natural since the complement of *no matter* is an interrogative sentence. Providing a complete analysis of sluicing is beyond the scope of this paper, but we can have a simple generalization like the following (cf. Ginzberg and Sag 2000, Merchant 2011):

- (35) Licensing Sluicing:

In the *wh*-filler and head construction serving as a complement, the head can be elided if its antecedent is discourse salient.

Since the constraint requires the *wh*-expression to function as a filler, we would not generate examples like the following, which we repeat here:

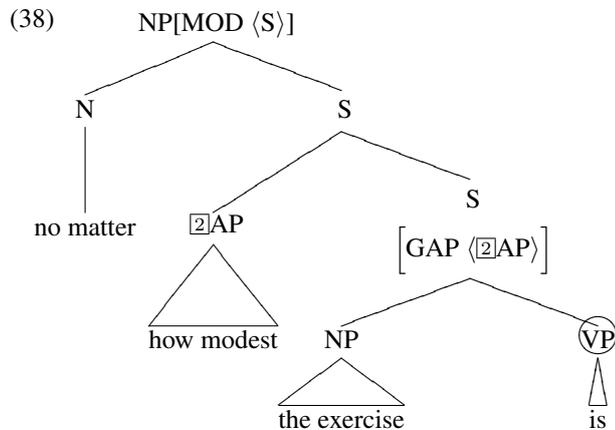
- (36) a. You should always be graceful and grateful, no matter whether *(you are five or fifty).
b. We'll finish third no matter if *(we win or lose these last games).

Even though the *whether* and *if*-clause here functions as an interrogative complement of *no matter*, the clause cannot be sluiced since they are already resolved question with no *wh*-filler. Note that the antecedent of the sluiced clause has a clear antecedent within the same clause:

- (37) a. Each bit of exercise, no matter how modest, burns calories. (COCA 1999 MAG Bicycling)
b. You know, one way to think about this is that when we have a helicopter that goes down, no matter for what purpose, we tell you. (COCA 2001 SPOK CNN_Event)

The sluiced antecedent is *the exercise is* and *the helicopter goes down*, respectively, indicating the discourse salient property of the sluiced clause.

A further complexity arises from the copula ellipsis in the construction:



The ellipsis of the lower S is sluicing, but that of the circled VP is not. As noted in the previous section, we cannot simply say this is an ellipsis of the copula verb *be*. It is the ellipsis of the VP including the filler AP as its gap element. In addition, the subject must be a definite NP in such a case. An informal constraint would be something like the following:

(39) Copula-VP Ellipsis

The VP headed with the copula verb can be elided if the copula is the sole head and its external argument is definite-generic.

Even though we refer to the VP level, the VP consists of only the copula verb *be* and its complement of the copula verb is in fact the wh-filler. This kind of constraint will block examples in (25), some of which we repeat here:

- (40) a. *no matter who angry at Robin,...
- b. *no matter who the assistant coach angry at.

However, the informally-stated constraint will generate examples like the following:

- (41) a. Women know a guy raised in the country can provide for her, feed her and shelter her **no matter [what] the circumstances**.
- b. Others may limit your way so that **no matter [how promising] your situation**, you are not free to make the most of it.

In addition, the condition on the external argument will block examples where the subject is indefinite or a simple pronoun:

- (42) a. *No matter how tall he, he cannot reach the sky.
- b. *You shouldn't use the elevator, no matter how tall a building.

Given that the elided copula here has no semantic content, the copula-VP ellipsis including the sluicing data here is possible as long as its antecedent is discourse-salient. We leave out the exact formulations of these sluicing and copula-VP ellipsis in the present system, but we can at least observe that the NMC closely interacts with many other constructions including a variety of ellipsis.

5 Conclusion

We have shown that the expression *no matter* displays many syntactic and semantic peculiarities. In particular, it combines with an interrogative complement clause in terms of syntax and denotes an unconditional meaning in terms of semantics. That is, similar to other free-range or unconditional constructions, the NMC takes scope high in the main clause, placing restrictions on the domains of operators in the scope. We have also seen that the expression *no matter* is better treated as an irreducible complex word, though inheriting certain properties from both its noun and verb counterpart. In terms of syntax, the construction also interacts with sluicing and copula ellipsis which also show quite irreducible properties.

Based on these observations and corpus search, we have sketched a construction-based analysis of the construction. In particular, we have suggested that some of the irreducible properties the construction displays can be best captured by the inheritance mechanism which plays a central role in usage-based Construction Grammar: the NMC has its own constructional properties, but also inherits properties from related major head constructions. This way of describing the NMC in English supports the spirits of Construction Grammar where (a) all levels of description (including morpheme, word, phrase, and clause) are understood to involve pairings of form with semantic or discourse function, and (b) constructions vary in size and complexity and form and function are specified if not readily transparent, and more importantly (c) language-specific generalizations across constructions are captured via inheritance networks, reflecting commonalities or differences among constructions.

References

- Culicover, Peter W. 1999. *Syntactic nuts: Hard Cases, Syntactic Theory, and Language Acquisition*. Oxford: Oxford University Press.
- Fodor, Janet Dean. 2001. Parameters and the Periphery: Reflections on Syntactic Nuts. *Journal of Linguistics* 37: 367-392.
- Ginzburg, Jonathan and Ivan Sag. 2000. *Interrogative Investigations: the Form, Meaning, and Use of English Interrogatives*. Stanford: CSLI Publications.
- Grimshaw, Jane. 1979. Complement Selection and the Lexicon. *Linguistic Inquiry* 10: 279–326.
- Haspelmath, Martin. 1997. *Indefinite Pronouns*. Oxford University Press.

- Huddleston, Rodney, and Geoffrey K. Pullum. 2002. *The Cambridge Grammar of the English Language*. Cambridge: Cambridge University Press.
- Kim, Jong-Bok and Peter Sells. 2008. *English Syntax: an Introduction*. Stanford: CSLI Publications.
- Merchant, Jason. 2011. Ellipsis. To appear in *Handbook of Contemporary Syntax*, Walter de Gruyter: Berlin.
- Michaelis, Laura A. 2011. Making the Case for Construction Grammar. In H. Boas and I. Sag, (eds.), *Sign-Based Construction Grammar*. Stanford: CSLI Publications.
- Nakajima, Heizo. 1998. Concessive Expressions and Complementizer Selection. *Linguistic Inquiry* 29.2: 333–338.
- Rawlins, Kyle. 2008. *(Un)conditionals: An Investigation in the Syntax and Semantics of Conditional Structures*. Ph.D. Dissertation., UC Santa Cruz.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svartvik. 1985. *A Comprehensive Grammar of the English Language*. London and New York: Longman.
- Sag, Ivan A., Thomas Wasow, and Emily M. Bender. 2003. *Syntactic Theory: A Formal Introduction*. Stanford: CSLI Publications.