Operationalizing mirativity
A usage-based quantitative study of constructional construal in English

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This study focuses on the conceptual category of mirativity and its constructional construal in English. We propose an operationalization of mirativity with a view to investigating the phenomenon within the usage-based quantitative methodology of multifactorial analysis (Geeraerts et al. 1994; Gries 2003). The proposed operationalization is founded on two usage dimensions, i.e., the degree of performativity of the utterance and the degree of incongruity of the described event. It is argued that mirativity, in its prototypical form, can be operationally defined as a combination of high levels of these two variables. The feasibility of this operationalization in usage-based quantitative research is tested in a case study investigating three SURPRISE-encoding constructions in English: \([what + the + NP]\), \([what + a + NP]\) and \([to + my + NP]\). The data, amounting to 350 observations of the three constructions, were extracted from dialogic online diaries and submitted to detailed manual annotation and subsequent multivariate statistical modeling. The results reveal a usage continuum ranging from \([what + the + NP]\) through \([to + my + NP]\) to \([what + a + NP]\) relative to the high degrees of performativity and incongruity.

Keywords: corpus linguistics, grammatical constructions, mirativity, multivariate statistics, profile-based approach, usage-feature analysis

1. Introduction: Operationalizing the conceptual-functional category of mirativity

The present study is a usage-based investigation of the constructional construal of mirativity in English. Mirativity, understood here to be a subcategory of epistemicity, encodes the speaker’s attitudinal state of surprise with respect to a given aspect of the interactive event (Dendale & Tasmowski 2001: 343; DeLancey 1997: 35f., 2012: 533). More specifically, mirative markers indicate that some information is not readily integratable with the speaker’s overall epistemic system and expectations (DeLancey 2001: 380). In other words, in some respect or other, it diverges from the picture of reality projected by the experiencer. On the epistemic cline, running from certainty, through disbelief (including mirativity), to lack of confidence and, finally, total rejection, the latter three categories lie in the domain of irrealis (Akatsuka 1985: 625). By this, it is meant that these categories encode different degrees of the speaker’s uncertainty with regard to a given aspect of the surrounding world.

\(^1\) We wish to express our gratitude to two anonymous reviewers for their constructive comments. Any remaining shortcomings are our own.
In the present study, this notion of an epistemic cline leads us to argue that mirativity can be perceived as a scalar phenomenon. We propose three arguments for this. Firstly, a given aspect of the unfolding reality can exhibit different degrees of incongruity with the speaker’s established understanding of the world. This conceptual dimension of incongruity is here used to refer to the divergence of the conceptualized situation from what the speaker would consider the expected and normal state of affairs: The greater this epistemic divergence, the higher the incongruity. Secondly, the category of mirativity, verging between epistemic certainty and uncertainty, can manifest varying degrees of enactment of the state of incongruity, which will here be referred to as performativity. This functional parameter of usage can be defined in terms of the presentation or stylization of the experienced situation: the more emotionally-charged, engaging and emphatic this presentation, the more performatively the utterance. Thirdly, the perspective adopted by the speaker to construe the surprising event is also likely to vary, exhibiting different degrees of subjectivity. This latter notion denotes the orientation of the utterance on and its grounding in the speaker’s standpoint. This third argument will not be taken up in the present study but warrants investigation in future research.

Mirativity, as a conceptual-functional category, is inherently onomasiological in nature. Although onomasiological, or function-first, approaches to grammar and lexis are fundamental to many theoretical paradigms (cf. Bondarko 1991; Talmy 2000; Geeraerts & Grondelaers 2003 *inter alia*), they all suffer from an inevitable weakness: since the descriptive point of departure is a non-observable concept or function, delimiting the object of study exactly is problematic. Such an approach necessarily entails lengthy debates as to what constitutes an instance of the object of study, here a mirative construction. For this reason, operationalization, or definition in terms of measurement instead of truth-values (Stefanowitsch 2010), is arguably a necessary step in mirativity research. This study does not claim to propose an adequate operationalization of the category that would be valid across all languages, but does seek to make the first steps in that direction.
The exact specifications of mirativity will naturally depend on its linguistic encoding and the overall context. One may assume, however, that the more enactive/performative the instantiation of the epistemic state of surprise and the higher the level of conceptual incongruity, the more mirative the given expression should be. This is the central claim of the present article forming the basis upon which to understand mirativity and formulate testable hypotheses. Accordingly, the semantic-pragmatic category of mirativity, in its most typical form, is here operationalized as a combination of:

(i) a high degree of functional performativity;
(ii) a high degree of conceptual incongruity.

It should be stressed that the mirative category is understood as the *simultaneous* instantiation of both incongruity and performativity.

In order to test the feasibility of the operationalization, we examine three lexico-syntactic constructions that express SURPRISE, or epistemic incongruity. The aim will be to quantitatively describe their use and, therefore, the conceptual-functional profiles of each construction in their relation to each other. An inherent limitation lies in the fact that we have no way of determining the mirative nature of the constructions independently of the study. This means that both the accuracy of the descriptions and the accuracy of the operationalization in capturing mirative structures cannot be categorically determined. Instead, the operationalization will be deemed successful if its application proves systematic and coherent and if the results are accurate, that is, quantitatively predictive.

2. **Object, Data and Method**

2.1 **Object: Three constructions for encoding epistemic incongruity**

The descriptive study is based on three lexico-syntactic constructions that can be used to express epistemic incongruity. The aim here is to determine what degree of mirativity the constructions encode. The three constructions are: Construction A [what + the + NP], Construction B [what + a + NP], and Construction C [to + my + NP]. The nominal slot in
Construction A typically licenses a range of taboo lexemes such as *fuck*, *hell*, *heck*. These lexemes are also used as expletive exclamatives and it is likely that there is some constructional inheritance involved. Indeed, the original construction may simply have been the exclamative *Fuck!*, where the lexical alternatives are euphemistic substitutes for the taboo term. This interpretation would explain why many taboo items, such as *shit*, are not licensed in this position. It is further supported by the fact that simple exclamatives can also encode epistemic incongruity and indeed, arguably, mirativity. However, explaining the lexical licensing of the constructions is not the goal of the present study and so such questions can be left open.

Although obvious, it should be stressed that a construction is not necessarily associated with a single usage anymore than a lexeme. Therefore, any statement about the semantics of the constructions assumes that this form-meaning pairing involves semasiological variation.

Construction B licenses a range of nouns that literally or figuratively designate *surprise*. In this, the construction is lexically close to Construction C, which also takes *surprise* nouns. It follows that, formally at least, the three constructions are closely related: Construction A is similar to Construction B syntactically, while Construction C is similar to Construction B lexically. If one accepts Construction Grammar’s Inheritance Theory (Goldberg 1995), one might argue that B inherits syntactic structure from A and lexical structure from C, making it a hybrid of A and C. Another possible developmental path would be for Construction A to inherit its syntactic structure from B, the latter still receiving its lexical structure from C. Figure 1 is a visualization of these potential inheritance relationships. Of course, it might well be that the three constructions developed largely independently of each other, over time coming to encode, among other functions, the speaker’s epistemic state of surprise. Further discussion about the relationship between the constructions is offered in section 3. However, it should be noted here that there is no suggestion that a given construction is uniquely associated with any given usage.
Figure 1. Formal relationships between constructions

2.2 Data: Interactive online language use

The corpus employed in this study is the LiveJournal Corpus of American and British English (Speelman 2005). This is a genre specific corpus made up entirely of online personal diaries. Although the social dimensions of speaker age, gender and social background are unknown, the corpus is strictly composed of two components, British and American. The language is highly informal, spontaneous\(^2\) and typically consists of diary entries describing personal events. Although the text is entirely composed of diary entries, the language is characterized by dialogic use. This latter feature is due to the interpersonal nature of the texts where the authors are aware that their blogs are publically available and open to comments and discussion.\(^3\) This fact, combined with the spontaneous nature of the language, offers some similarity to live interaction. This is especially important when dealing with such intersubjectively negotiated categories as epistemicity in general or mirativity, in particular.

Nonetheless, due to the written nature of the data, the utterance is by default distinct from the event that triggers the state of surprise. This means that purely performative verbal responses to conceptually incongruent situations are a rarity. The mirative event is, therefore, in a sense, nearly always reported or re-enacted for the addressee \textit{post factum}. The speaker-cum-

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\(^2\) The language used in \textit{LiveJournal} can be considered spontaneous, as it tends to approximate natural language production. This is true in two respects. Firstly, the blogs do not seem to be edited by the authors, as evidenced by frequent typos, rewording or what may be regarded as unintended repetition of words (i.e., clearly not for emphatic purposes). Secondly, the language appears to reflect the speaker’s naturally unfolding stream of thought or consciousness. Although this is a subjective impression of the text, being impossible to verify, the impression is systematic across the majority of entries.

\(^3\) The dialogic nature of the blogs is evidenced, for example, by the common use of linguistic devices that are normally characteristic of spoken dialog whose function involves inviting replies or addressing specific followers of the journal, \textit{etc}. 
writer chooses to employ an expression that simulates a mirative utterance, assumedly for stylistic effects and better expressivity. Interestingly, however, there are some examples in which the expression of epistemic incongruity is coextensive with the event causing it, as evidenced, to varying degrees, by (1)–(3):

(1) *I am starting my next assignment for our writer's group, even though I was sure I would do it earlier this time. Where does the time go. I am doing some research, wow what a surprise that is for me.*

(2) *what the heck, this is the 4th journal that i have posted and the other two aren't there!!! Uggg. this one better be there when im done.*

(3) *Okay so i'm trying to register for classes and it's not letting me on! what the heck!!! I guess every other freshman on this campus is tryin to as well. Ugggg! Well, I got bored and decided to go to facebook...nothing special so I checked my email....once again nothing*

In these examples, the state of surprise concerning the speaker’s online activity is expressed simultaneously (or nearly so) with the experience itself. This is especially true in the case of (1) and (2), where it may be claimed that the state of epistemic incongruity is expressed at the same time as it arises. It should be noted though that in (1), the temporal scope of the experience may well go beyond the here-and-now of its externalization, incorporating the extended present time in which the research is being conducted. In (3), on the other hand, there is likely to be a small delay between the experience and its verbalization.

Methodologically, this study bridges quantitative corpus-driven research and close qualitative text-discourse analysis. For this reason, it is important to stress that the manual

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4 In uses such as those presented in (2) or (3), it might be argued that the state of epistemic incongruity is no longer a case of unadulterated surprise; rather, it may well be mingled with that of annoyance, which commonly follows negative instances of surprise. However, a comparable epistemic-emotional fusion will be true of those instances of surprise where the evaluation of the event is positive. In such cases, the epistemic state of surprise will be likely to be tinged with happiness. The emotive state that the incongruity evokes should be a separate concern from the incongruity itself.
annotation necessitated substantial contextualization of the investigated construction. Despite all
due care, the identification and subsequent annotation of the categories under investigation
remain highly subjective. To illustrate the importance and difficulty of this point, consider
examples (4) and (5):

(4) *Whoa! what the heck was that? Did you just feel the earth move under your feet?*

The immediate impression one is likely to get after reading the example is that this utterance is
indeed nearly-simultaneous with the event causing it, an earthquake, which also shows that the
statement is liable to receive a literal reading. However, once we take more of the surrounding
contextual information into account, as is the case in (5), it becomes apparent that the utterance
should be understood figuratively and that the expression of surprise is not at all co-extensive
with whatever causes it:

(5) *today's horoscope: Capricorn: Whoa! what the heck was that? Did you just feel the earth move under your feet? Lately it feels like foundations that you take for granted no matter what are being awfully shifty and unreliable. It's important to remember that in this world, the only constant element is change. So while it feels like everything is in a state of upheaval, hold onto a sense of perspective and you'll be just fine.*

The data for the study, comprising approximately 350 examples, were extracted proportionally
– equal numbers of occurrences per construction and per dialect. Although the constructions
license a wide range of lexemes in the nominal slot, this study is restricted to a small set of the
most frequent lexical instantiations. These lexemes include *fuck, hell* and *heck* for construction
*A, surprise* and *shock* for construction B, and *surprise, shock* and *horror* for construction C. In
addition, construction A subsumes the acronym *wtf*, standing for ‘what the fuck’, which is
commonly used in informal written communication that makes up the corpus.
The examples were also checked to make sure they encoded the experience of the speaker. Although this could be performed automatically for Constructions B and C, there were many instances of quotatives in Construction A. This was especially common with the construction-lexeme pairing *what the fuck*, where speakers would use the expression to describe a third person’s reaction. An example of this kind of use would be ‘He was like “what the fuck”’. Therefore, it was necessary to check the sample manually to ascertain that all the occurrences encoded the speaker’s own experience.

2.3 Method: Constructional profiles and multifactorial feature analysis

The aim of this study is firstly to test an operationalization of the category of mirativity and secondly to offer a quantitative usage-based description of three constructions that express epistemic incongruity in English. The descriptive study employs Multifactorial Usage-Feature Analysis or the Profile-Based Approach (Dirven et al. 1982; Geeraerts et al. 1994; Gries 2003; Divjak 2010; Glynn & Fischer 2010; Glynn & Robinson 2014). This method comprises three steps:

1. Corpus – A large sample of contextualized examples of a given linguistic phenomenon
2. Usage-Features – Manual annotation of examples for a range of usage-features
3. Behavioral Profile – Multivariate statistics is used to establish the frequency-based patterns of the use of the linguistic phenomenon under investigation.

Importantly, the final step, given sufficient data, can also ascertain statistical significance, the effect-size of the specific variables, and the predictive power (descriptive accuracy) of the identified patterns.

The present study uses three statistical techniques. Patterns of usage, indicative of the behavioral profile, are first identified with the use of multiple correspondence analysis (cf. Glynn 2014). The statistical significance of the correlations that underpin these patterns is tested
for with loglinear analysis (cf. Krawczak & Glynn in press). Finally, the descriptive accuracy of
the patterns is calculated with use of fixed-effects polytomous logistic regression (cf. Krawczak
2014a, 2014b, 2014c). The underlying assumption behind the use of Multifactorial Feature
Analysis and the Profile-Based Approach is that contextualized language structure, as registered
in corpora, affords an index of the conceptual structuring of the linguistic phenomenon under
scrutiny, here mirativity. For a comparable method, based on elicited data rather than usage
data, components analysis has been developed in psychology (Scherer 2005; Fontaine et al.
2013; Soriano et al. this volume).

Although there is an established tradition of applying this method for the analysis of
grammatical constructions (Gries 1999; Heylen 2005; Bresnan et al. 2007 inter alia), these
studies have usually focused on syntactic alternations. A syntactic alternation results in a binary
response variable for which quantitative techniques have been established. Previous research on
a network of constructions has been restricted to exploratory multivariate statistics (Glynn 2008,
2009, 2010). Multinomial outcomes, as is required for the confirmatory modeling of a
constructional network, have thus far only been applied to lexical relations (Arppe 2008;
Nordmark & Glynn 2013; Krawczak 2014a, 2014b). Although extending these statistical
techniques to a field of near-synonymous constructions should be unproblematic, it has yet to be
undertaken.

3. Analysis. Manual annotation of sample
The present study, aiming to determine the usage profiles and measure the mirative status of the
investigated constructions relative to a specific operationalization of the phenomenon, examines
two major factors that are directly informative in this regard, namely, the degree of incongruity
and the degree of performativity. The former conceptual variable concerns the extent to which a
given event is incongruent or surprising, while the functional dimension of performativity refers
to how (re)enactive the presentation of the given situation is. In both cases, three levels are
distinguished, i.e., strong, neutral and weak. All the examples in the dataset were manually
annotated for these two factors as well as a range of other functional variables (Speaker Evaluation, Speaker Engagement, Stimulus, Temporal Scope of the Stimulus), which, due to space limitations, are not included in the present study. It must be stressed that the qualitative analysis, consisting in manual annotation, is a meticulous procedure. It is for this reason that the sample is restricted to 350 occurrences.

3.1 Conceptual-functional mirative profile of constructions

Having established the formal relations between the constructions, let us move to the qualitative description of how these constructions might profile the conceptual-functional category of mirativity. This will permit the formulation of a set of hypotheses that will then be tested quantitatively in section 3. At first glance, constructions A and B could both be taken to represent the more performative instances of expressing conceptual incongruity, whereby the speaker encodes his or her epistemic stance vis-à-vis a given unexpected development or situation in a dynamic and direct manner. Such a dynamic and enactive construal could be claimed to be imposed by the exclamative what, which is most likely to be selected to encode the experience of surprise in the immediate circumstances in which it arises. It is as if the subject, by choosing this exclamative expression, (re-)enacts his or her disbelief, rather than describing it to the interlocutor. Given this, these two constructions could be viewed as prototypically mirative, especially when accompanied by other means of expression, such as capitalization, the use of exclamation marks or multiple question marks and other emphatic elements, e.g., the use of direct speech, repetition, emoticons or some emotionally-charged acronyms such as LOL. These highly expressive features are illustrated in examples (6) and (7), both instantiating Construction A:

(6) she doesn't wanna be married any more?? She then proceeded to make me feel worse by telling me that she doesn't see me as her husband because she is not as into marriage
as I am. **WHAT THE FUCK IS THAT??!!** If any of you need someone to make you feel like complete shit, gimmie a call and I'll let u talk to my wife.

(7) I went into the back to count my till and stuff and then Stephanie comes in (and I had never worked with her before) she like screams ""Oh my gosh, you have the most perfect nose"" I was like ""**what the heck?**"" LoL it was really funny lol... im like ummm okay never heard that one before lol.

In example (6), the speaker discusses a highly emotionally-loaded issue and employs capitalization as well as multiple question marks and exclamation marks to intensify their pragmatic import. In example (7), on the other hand, the reported incident is not so much particularly significant to the speaker as clearly highly unexpected. This is evidenced not only by the use of *what the heck*, but also by the use of direct quotes of what was being communicated and what the speaker’s thoughts were, which is accompanied by the acronym LoL, repeated three times.

As mentioned in section 2.1, Construction B is formally related to Construction A, the main difference being the definite – indefinite article alternation.\(^5\) Intuitively, there might be some reason to believe that Construction A carries a higher performative load. This could be argued to be a result of the lexical slot. In contrast to Construction B, Construction A licenses expletives such as *fuck* or *hell*, which are also used as exclamatives in their own right. Although the contribution of the lexical item to the performativity of the construction appears self-evident, the role of the definite article is less obvious. At this point, a closer investigation of the structure of the construction would need to consider both its diachronic development and its relationship with daughter constructions such as ‘*what the EXCLAMATIVE is that* (doing here)’

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\(^5\) The other difference between the two constructions, as discussed in section 2.1 and elaborated on below, is not syntactic in nature. It relates to the specific noun licensed. The divergence consists in how in Construction A, the nouns have a clearly expletive function, while in Construction B, they are more descriptive of the epistemic state experienced by the speaker.
etc. Despite the fact that such a line of inquiry would be interesting and might well be informative, it is beyond the purview of the current study.

Construction B differs from Construction A on two accounts. Syntactically, it uses the indefinite article, which renders the described situation or, rather, the epistemic experience, much less focused, i.e., less determinate or specific. Lexically, it takes, in the nominal slot, one of the synonymous expressions instantiating SURPRISE. In the present study, these include surprise and shock. These lexemes clearly lack the expletive element typical of the lexemes associated with Construction A, thus being much more descriptive of the speaker’s epistemic state. These two lexico-grammatical characteristics can be argued to attenuate the performativity of Construction B. It could also be assumed that this construction will be favored over Construction A in circumstances that are less incongruent with the speaker’s epistemic system of expectations and assumptions. For these reasons, Construction B may be expected to figure lower on the scale of mirativity. Its usage is illustrated in (8) and (9):

(8) I had totally forgotten about an exam I had taken a few weeks back which would allow me to do new procedures at work. Well today I got an envelope with the results in... what a shock. Overall I got 80% but unbelievably for my practical exam I got 11/10?!? How is this possible I hear you ask? Well so did I, so I asked my manager who explained it to me. The Home Office examiner (nice lady that she is) was so impressed with my technique ; ) she gave me an extra point.

(9) In the morning met up with Adri and ended up going to tardy tank with her and Zuly. what a surprise eh? And of course same people as always were there hahah.

The situation described in (8) indeed appears to come as a shock to the speaker – s/he is genuinely surprised by it – but the immediate co-textual features in which what a shock occurs are considerably less performative than those we have observed in (6) and (7) above. The expression itself is not accompanied by multiple exclamation or question marks, capitalization
or other parallel emphatic features. Such characteristics do, however, occur in the sentence that follows, where it becomes clear that *what a shock* really does encode the speaker’s disbelief. Another feature that is noteworthy is the question directed at the addressee. This is particularly interesting in that such an addressee-engaging element in the utterance, which we might refer to as heightened addressee-orientation, is also present in (9) in the form of the interactively employed exclamative *eh*. The presence of such features, perhaps at the expense of a higher degree of performativity, might suggest that Construction B is oriented more on the interactive event and the addressee, while Construction A is more readily focused on the speaker, his/her subjective experience and the venting thereof. Despite this commonality present in both (8) and (9), in the latter example, the expression *what a surprise* clearly encodes a very low level of incongruity, being used in a rather ironic manner. As a matter of fact, this non-literal use is not uncommon in the observations of [*what* + *a* + *NP*] found in the dataset compiled for this study. Such sarcastic usage is hard to imagine in the case of Construction A, which might well be taken as another characteristic determining the more prototypical status of [*what* + *the* + *NP*] vis-à-vis the category of mirativity.

Construction C, on the other hand, could be said to instantiate a more objective and descriptive designation of a given incongruent event. Here, the speaker adopts a less dynamic encoding system and by direct reference to him- or herself by means of the possessive adjective *my*, treats him- or herself as an object of conception, an onstage participant of the conceptualized scene, to use Langacker’s (1987) parlance.\(^6\) It may be assumed that such a relatively low level of enactive dynamism and high level of descriptivity is likely to be accompanied by an equally low level of incongruity, or, at least, a considerable distance, temporal or conceptual, toward the conceptualized event. In this respect, construction C, lacking

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6 By the same token, Constructions A and B can both be claimed to impose a more subjective construal on the experiencer in the sense that their expression of epistemic incongruity does not make explicit reference to the speaker and so the link must be inferred. This feature may also be among the conditions that permit the ironic use of Construction B, where its meaning encoding *SURPRISE* can be removed or reversed. Arguably, such use is impossible in the case of prototypically mirative Construction A and prototypically non-performative Construction C. This subjectivity-objectivity discussion, however, is beyond the scope of the present study.
in performativity and low in immediate incongruity, might be regarded as marginally, if at all, mirative. Sentences (10)–(11) can serve as an example of the low level of performativity and relatively high descriptivity of \([to + my + NP]\).

(10) I got talking to the new boy; his name was Jeph Howard. He was really nice to my surprise even though he had somewhat of a strange look about him.

(11) I bought the Sigma lens on Saturday, much to my surprise (another £320 gone).

In both these sentences, the speaker reports on the surprising event, without enacting the situation. The incongruity of the event might have been strong as the event unfolded, but its immediacy has since waned to the extent where the speaker can distance him/herself from it and approach it from an external vantage point, treating him/herself as a participant of the described circumstances. Other than passage of time, which removes the intensity of the experience of surprise, another dimension that may be decisive in the choice of a less dynamic and enactive construal is the event itself and its importance to the conceptualizer. The more significant the conceptualized event is to the speaker, the more likely it becomes that the construal will tend toward high performativity. The use of the descriptive expression to my surprise in (10) and (11), rather than a more performative phrase, may be argued to be the result of a less emotionally engaging theme and an event that, in the end, is not all that surprising to the speaker at all. In other words, the overall importance and incongruity of the described situation can be ranked as low. It, therefore, comes as no surprise that the construal imposed by the speaker is less dynamic and enactive.

These proposed differences between the three constructions are presented in Table 1. The first column lists the constructions, while the following two columns specify the hypothesized relations obtaining between each construction vis-à-vis the functional dimension of performativity and the conceptual dimension of epistemic incongruity.
Table 1. Hypotheses for conceptual-functional profile of epistemic incongruent constructions

<table>
<thead>
<tr>
<th>Construction</th>
<th>Functional dimension – Degree of Performativity</th>
<th>Conceptual dimension – Degree of Epistemic Incongruity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: what + the + NP</td>
<td>High Performativity</td>
<td>High Incongruity</td>
</tr>
<tr>
<td>B: what + a + NP</td>
<td>Moderate Performativity</td>
<td>Moderate Incongruity</td>
</tr>
<tr>
<td>C: to + my + NP</td>
<td>Low Performativity</td>
<td>Low Incongruity</td>
</tr>
</tbody>
</table>

In accordance with the above discussion, Construction A is hypothesized to rank relatively high on the functional scale of performativity and equally high for the conceptual parameter of epistemic incongruity. Constructions B and C, on the other hand, are each expected to be comparatively lower on this conceptual-functional continuum. This continuum is put forward here as a yardstick against which to gauge the degree of mirativity encoded in a given expression.

3.2 Operationalizing performativity and incongruity

Let us now illustrate these two conceptual-functional categories and their respective levels with examples from the corpus. We start with incongruity. Below are three entries from the online blogs, each representing a different degree of incongruity of the conceptualized circumstances relative to the speaker’s overall accepted world knowledge or expectations.

(12) This weather is weird. I went out last night, after dark, to take the dogs on a potty break. I was in a sleeveless shirt and my pajama bottoms. AND I WASN’T COLD! what the heck? Crazy crazy craziness. I should probably be out taking advantage of the beautiful weather, out playing with the kids or something more fun. But we have been total hermits this week. (Strong Incongruity)

(13) i said geography is probably the most important one, and she said so whens that in for, i said tomorrow, shes like so its in for today? and im like no. shes like so okay its in for today, what lesson? im like WTF (in my head) and i just shrug. shes like " well i suggest you go and speak to your teacher at break"" i was like okay... (Neutral Incongruity)
In example (12), there are a number of usage-features that implicate the relatively high level of incongruity between the specific situation presented by the speaker, i.e., the fact that the temperature was warm enough for him/her not to feel the cold, and his/her expectations to the contrary. The post begins with the description of the weather as weird, then explains what the speaker was doing and wearing. This is followed by the exclamation AND I WASN’T COLD!, whose pragmatic leverage is additionally reinforced by the use of capitalization. Next comes the expression of surprise, encoded by what the heck?, strengthened in its import by the words ensuing it, which involve emphatic repetition, Crazy, crazy craziness. In (13), the speaker’s disbelief in his or her interlocutor’s capacity for misunderstanding what is being communicated is moderate. The speaker does not seem to attach too much importance to the event. This is evidenced by the modification in my head, which indicates that the experience of epistemic incongruity was not verbalized in front of the other person. What is more, the description of the physical response to the interlocutor’s behavior demonstrates that the short-lived state of epistemic incongruity was shrugged off. Finally, in example (14), despite the use of the exclamative woah, which might be taken as a highly performative form of giving vent to one’s surprise, the construction what a surprise is followed directly by the negating agent of note the sarcasm. This cancels altogether the encoded meaning of incongruity, showing that failing the specific subject at school does not at all come as a surprise for the speaker. It was to be expected.

The other functional variable, performativity, is also subdivided into the same three levels specifying its intensity, i.e., strong, neutral and weak. Example (15) below illustrates the first degree of performativity.
Here, the speaker puts on a real show for the readers of the blog, expressing not only the mental state of incongruity, in this case a strongly negative experience, but also, in an exaggerated manner, the other accompanying effects, such as panic. Special effects are added by the use of such emphatic features as capitalization or repeated exclamation and question marks. The exclamative, BLODDDDY HELL, accentuates the (re-)enactive character of the utterance even further. The next level of neutral performativity is exemplified by (16) below:

(16) today I got this official letter thru the post. When I opened (to my shock) it was a letter about my future pension! I was like "WTF? I'm gonna be 21 tomorrow! Not bloody 61!"

Still, the words haunt me even now. (Neutral Performativity)

Compared to (15), this post is rather moderate in its performativity. It contains two realizations of the state of incongruity, both referring to the same event, i.e., the unexpected and rather premature reception of a pension portfolio. The former surprise-encoding construction, to my shock, is parenthesized, which significantly weakens its pragmatic thrust, so much so that it might well qualify as instantiating weak performativity. The latter expression, WTF, accompanied by a single question mark, is relatively lower on the performativity scale than its counterpart in (15). Two other features are noteworthy here. On the one hand, WTF is preceded by I was like, which is a rather descriptive phrase, commonly used to describe the observation-based surprise-induced reaction of other people rather than that of the speaker. On the other hand, however, WTF is embedded in a direct quote allowing the addressee to enter the immediate scene which is epistemically incongruent with the speaker’s expectations. This example, therefore, combines less performative usage-features, i.e., I was like, with more
performative ones, i.e., the use of direct speech. The presence of these latter characteristics is further foregrounded by the use of two exclamative comments concerning the speaker’s age and the age of a person eligible for retirement, with the latter containing the emphatic lexeme *bloody*. This does not come close to the performative nature of (15), but, altogether, it does mean that the expression of surprise is moderate in its re-enactment/performativity, rather than weak.

Finally, in (17) below, the utterance can be said to be weakly, if at all, performative, as it does not contain any special characteristics that would make it re-enactive in any way. An additional characteristic is that the expression is positioned medially in the utterance, functioning primarily as a modifying agent of the *feeling of sadness*, rather than an expression of the epistemic state of surprise considered in its own right.

(17) *I drove home out of seaford for the last time on friday night, with much to my surprise a distinct feeling of sadness.* (Weak Performativity)

The two descriptive dimensions, discussed and exemplified above, serve as the basis upon which mirativity is operationalized. In line with this operationalization, it is hypothesized that a direct proportional relation will obtain between the increase in the semantic category of mirativity and the degrees of performativity and incongruity. Before turning our attention to the quantitative modeling of the linguistic behavior of the three constructions, let us consider the functional category of descriptivity and its relation to that of performativity.

3.3 *The problem of the functional category of descriptivity*

The discussion thus far suggests that performativity and descriptivity are related. One assumption is that this relation could take the form of two opposed poles on a conceptual-functional continuum. Although it may be possible that performativity and descriptivity are related, in this section, we argue that the two language functions do not lie on a mutually
exclusive continuum. Since the role of descriptivity is not included in the analysis, its omission warrants justification.

Nuys (2001), in his analysis of epistemic predicates such as think and believe, sees the distinction as not only opposed but discrete. For example, the utterance I think is performative, but the utterance she thinks is descriptive. Although we are using the terms in a slightly different way, the idea that these ‘kinds of functions’ are opposed, be that discretely or upon a cline of degree, enjoys wide currency in Functional Linguistics. Indeed, it is precisely this kind of difference that Halliday’s (1985) discrete and opposed ideational and interpersonal meta-functions are designed to capture. If performativity and descriptivity are mutually exclusive, then including descriptivity as a parameter in the analysis of mirativity would be crucial. However, do we have reason to juxtapose these two functions a priori? Deductively, is there an argument that demonstrates that an utterance cannot be both performative and descriptive simultaneously.

Despite the difficulty in providing a clear definition of the category of mirativity, at a theoretical level, there would be no disagreement over the fact that descriptivity is clearly distinct from mirativity. If this is the case, understanding the role of descriptivity and identifying its presence should be crucial to the identification and characterization of mirative structures. However, empirically, it would appear that performativity does not automatically preclude descriptivity, and vice versa. To illustrate this important theoretical and descriptive point, let us consider example (18):

(18) After just two minutes, I was nearly bald above my ears, but had bushels of hair billowing over the side of my head like a bad bowl cut. She tried to compensate by evening out the sides with the top using scissors, so I waited patiently, watching my changing reflection in the mirror. Then, to my horror and quite without warning, she pronounced my haircut finished. Although I probably should've just left before this butcher could do any more damage, I asked her to take a little more off the top, so that it would be even with the
sides instead of looking like I had extra brains hanging off the sides of my head.

Resigned to my fate, I watched in dismay as she took a razor to the top of my head.

Arguably, the speaker here is simultaneously expressing his/her epistemic state of surprise in the performative sense, by staging the scene in a most vivid and humorous manner, and describing it, by using what seems to be the objective-descriptive encoding of surprise, to my horror. Among the phrases that add to the highly expressive character of the utterance, we can list butcher referring to the hairdresser, in dismay denoting the speaker’s emotional state or the witty description of the dreaded haircut as looking like ... extra brains hanging off the sides. Examples such as this would suggest that a discrete opposition between the two notions should not be assumed.

In contrast to example (18), the utterances in (19) and (20), although employing the more performative construction of [what + a + NP], are much weaker in their performative import.

(19) the pictures she posts, apparently not realizing that i can also see her bulletins. and she is a survey freak so i get a lot of insight into my darling eldest childs world. there’s a lot of drinking going on. hmmm... what a shock. in my defense, i never drank around my kids except on special occasions and then never to excess.

(20) Some talk show, mom and leslee are watching,.Lol Okay.. this weekend?! Leslee popped into town.. what a surprise, in a way. On Saturday, we hung out around the house, and then mom wants to trade in her neeeew truck!!

Here, despite weaker performativity, there is no evidence that descriptivity increases. In other words, if the two functions were at two ends of a continuum, one would expect that a decrease in one function would result in an increase in the other. Although such an important claim
warrants further research, the examples presented here would suggest that the categories of descriptivity and performativity are independent of each other.

An additional observation should be made here with regard to the conceptual dimension of incongruity encoded in examples (19) and (20). This is a point that refers us back to what has already been stated about Construction B in section 3.1, namely that, based on the examples gathered for the present study, [\textit{what} + a + \textit{NP}] clearly manifests potential for semantico-pragmatic weakened or even reversed usage, where instead of designating \textit{SURPRISE}, the construction may come to denote complete lack thereof. In the case of these two examples, the incongruity is not denied altogether, but rather its extent is toned down by the use of \textit{hmmmm} in (19) and \textit{in a way} in (20). On the basis of such observations, one might conclude that lower degrees of epistemic incongruity might be reflected in lower levels of performativity, which, as indicated above, does not necessarily imply higher levels of descriptivity. Overall, this would suggest a direct proportional relation between the conceptual dimension of incongruity and the functional parameter of performativity, regardless of the descriptivity. This could be taken as further evidence for the conceptual-functional independence of these performative-incongruity categories and the category of descriptivity.

For the purposes of the current study and its aim to develop an operationalization of the category of mirativity, we will leave aside the problem of the relationship between the ideational – descriptive function and the interpersonal – performative function. Due to the uncertainty surrounding the role of descriptivity, the case study presented below omits this dimension in its analysis. However, the above examples strongly suggest that future research will need to explicitly bring this dimension into the understanding and description of mirativity. Let us now proceed to the next step of multivariate quantitative modeling. This stage will enable us to identify usage-patterns in the multidimensional metadata that results from the detailed manual annotation of the examples.
4. Results

This section presents the results of the quantitative analysis of the annotated data. This is done in two steps. We first employ an exploratory method in the form of multiple correspondence analysis, which is then followed by the confirmatory stage, where log-linear analysis and polytomous logistic regression modeling are used. The former exploratory technique, which reduces the multiple-dimensional space to two dimensions, identifies patterns of language use based on association of features, where the relative proximity of data points is indicative of their degree of correlation. This method, however, does not tell us whether the correlations (associations or disassociations) are statistically significant. To establish how descriptively accurate the analysis is and whether we can make any predictive generalizations, we use the two confirmatory methods. It is their role to determine the significance and importance of the individual usage-features in predicting a given outcome level, i.e., one of the three constructions.

4.1 Identifying usage patterns

The plot in Figure 2 visualizes the correlations emerging between the three constructions, i.e., [what + the + NP], [what + a + NP] and [to + my + NP], the degree of performativity and the degree of incongruity. The size of the individual data points is indicative of their contribution to the overall structuring of the distribution of the data.
Figure 2. Multiple correspondence analysis: Construction, Performativity and Incongruity

In Figure 2, from a coarse-grained perspective, we can see that the three constructions are located in three different quadrants of the plot. This means that they form distinct groupings, determined by relatively clear correlations of usage-features. In the bottom left-hand quadrant, [what the NP] is closely associated in use with both strong incongruity and strong performativity. Recalling that our operationalization of mirativity proposed a definition based on a combination of a high degree of both these pragmatic variables, this correlation may be taken to mean that this construction is highly mirative in its use. Example (21) is typical of the kind of usage identified by the correspondence analysis here.

(21) AND the wierdest thing just happened. My mother called a lil while ago, and we were just doing the normal talk about what we both did today and whatever and out of nowhere I started CRYING. I don't even know why. She wasn't being mean to me or ne thing! I think I
REALLY miss my mom and am REALLY homesick. **what the hell doode?!** I don't even LIKE my mom, but maybe she's growing on me.

This utterance is both emphatic and emotionally charged, as evidenced by the use of capitalization and intensifying adverbials to express some of the more important landmarks of the conceptualized event. The speaker here goes well beyond mere description of the situation. She puts it onstage and re-enacts it for the readers. We can nearly ‘hear’ her complete shock as she enunciates the capitalized words. She also chooses to additionally justify her epistemic state of incongruity, expressed by **what the hell doode?!** with an explanation as to why the event is incompatible with her overall expectations.

As we go further up in the plot, we find the second construction, [to my NP], situated in what may appear as isolated conceptual context, given the absence of other features in this quadrant of the plot. This, however, is not at all the case. What the position indicates is that the construction occupies a middle conceptual field stretching from neutral incongruity, to be found in the top right-hand quadrant, to its stronger instantiations, as placed in the left-hand quadrant along the x axis. This latter aspect can be exemplified by (22), where the speaker clearly expected a different outcome of his or her efforts:

(22) For the first time in 3 years i decided to actually properly revise instead of cramming, and to my surprise i didn't do too well lol. I got 3 D's and in the only exam i crammed i got an A. I think that is meant to tell me not to try and revise and be organized for my exams in the future.

Overall, the construction emerges as neutral in its performativity, a correspondence to be found in the top right-hand quadrant <Degree of Performativity: Neutral>. This means that, by and large, this construction is not characterized by distinctly enactive properties. This finding is in
accordance with our hypothesis, which posits a considerably less performative profile of this encoding of surprise.

Finally, in the right-hand quadrant, the last grouping emerges for the construction [what a NP], which is still lower on the scale of mirativity, being closely related to weak epistemic incongruity and equally weak or neutral performativity, as evidenced in utterances (23) and (24), respectively. This is an interesting finding, which stands in sharp contrast to what we postulated in section 3.1, where this construction was expected to be relatively close to [what the NP] in its mirative value. As the plot demonstrates, it here emerges as the least mirative realization of the state of epistemic incongruity. Examples (23) and (24) illustrate how these associations of usage-features come together to produce the emergent behavioral tendency.

(23) *I had so much on my mind this morning. We had an early appointment so there was no time to put in an LJ post and now most of it is gone from my head*. what a surprise

(24) *im failing physics..woah what a surprise -note the sarcasm- and im failing geometry –gasp - yeah so this week was just boring man.*

In both examples, the conceptualized event clearly does not come as a surprise to the speaker, who, given either general expectations or specific awareness of his/her own skills, uses the expression what a surprise with a purely ironic intent. It is completely bleached of the sense designating epistemic incongruity. This usage characteristic relates to our discussion in section 3.1, where it was noted that unlike either Construction A or Construction C, the instantiations of [what + a + NP] are the most likely candidates for ironic uses. In utterance (24), this pragmatic function of ironizing is additionally augmented by the explicit reference to sarcasm. In both cases, the report can also be said to be much more descriptive than performative with respect to the conceptualized scene. There is, however, one feature that diverges from such a descriptive account, namely the use of the exclamative woah. In natural speech, it would, in all likelihood, be marked by appropriate prosody, such as lengthened, nasal and stressed intonational patterns.
with a clear negative coloring (Winner et al. 1987). The same sort of prosodic contour would accompany the surprise-encoding expression itself. The absence of such means of expression, typically reserved for the speech mode, may be the main motivating factor for the blogger to make the sarcastic character of the statement overt through the interjected cue *note the sarcasm*. This way, any misunderstanding is avoided.

### 4.2 Confirming usage patterns

We will now turn to two confirmatory methods in order to evaluate the reliability of the patterns identified above. We begin with loglinear analysis, a technique that identifies statistically significant correlations and anti-correlations. We then test the overall descriptive accuracy of those correlations with a polytomous logistic regression.

Figure 3 presents a mosaic plot that visualizes the results of the loglinear analysis, i.e., the interactions obtaining between the three constructions relative to the functional dimension of performativity and the conceptual dimension of incongruity. In this visualization, significant associations and disassociations are represented by means of colors, where blue indicates the degree of attraction, while red stands for repulsion. A three-way set of correlations is included, where the interaction of each of the levels of the degree of incongruity and performativity and each of the constructions is represented. The size of the ‘boxes’ is indicative of the relative frequency of the correlation.
Figure 3. Loglinear analysis: Incongruity, Performativity and Construction

Taking the first construction, \([to\ my\ NP]\), represented in the first column, we can see that it is associated with neutral degrees of both incongruity and performativity, as indicated by the blue cell. It is also disassociated from weak incongruity and strong performativity, as evidenced by the red cell at the bottom of this column. This conforms fully to what we have seen in the multiple correspondence analysis in Figure 2. The usage profile of this construction can thus be described as neutral with respect to mirativity – it is most commonly associated with contexts that constitute a middle conceptual field, being neither particularly performative nor predominantly descriptive. This neutral, rather than weak, character of the construction in both these regards may be attributed to its occasional employment in a relatively enactive manner, whereby the speaker stages the conceptualized scene in most vivid terms, as can be witnessed in (18) above or (25) below:
(25) Finally I got everyone out of my room, took a deep breath, then just sat there for a second looking at the mess... as soon as I felt calm enough to continue I felt something crawling up the inside of my pants leg and I just imagine this huge discussing [sic] black widow getting ready to stick its nasty little fangs into my leg, so I get up and try shaking it out but this "bug" just kept on climbing so I grabbed it from the out side of my pants and brought it down but to my surprise it wasn't a massive ferocious spider but a sweet innocent little lady bug (I was mesmerized! lady bugs are my favorite bug they are my "lucky bug" so to speak ...)

In this utterance, the speaker chooses a highly performative and emotionally engaged way of reporting the situation, which serves to show how strongly incongruent the event was with his/her expectations. It is more of a performance than a mere description. So much so that the addressee can imagine the conceptualized event in quite vivid terms and experience it him- or herself in a vicarious manner, which is greatly facilitated by the re-enacting skills of the blogger. The spider is not just a spider, it is a huge discussing [sic] black widow or a massive ferocious spider, and the ladybug is not just a ladybug, but a sweet innocent little lady bug, and finally the speaker is not just surprised, s/he is mesmerized. Nevertheless, despite this rather highly enactive nature of this specific example, overall, the construction emerges as neutral in its performativity and incongruity alike. This is to say it remains somewhere in between highly performative and incongruent uses, on the one hand, and marginally performative and less incongruent ones, on the other. They might perhaps even be referred to as descriptive to the extent that, rather than enacting the situation in a dynamic manner, most of the time, they merely report it without much engagement on the part of the speaker.

The second column shows the features linked to [what a NP], which is repelled by both strong incongruity and performativity, as indicated by the red box at the top of the plot. This relates directly to what we have seen in the previous analysis presented in Figure 2. As we go to the bottom of the mosaic plot, we can see three cells of different shades of blue indicating that
this construction is also linked to weak instances of incongruity in conjunction with all degrees of performativity, which is an interesting pattern that has not emerged to this extent in Figure 2. This regularity may be related to the fact that this construction tends to be used sarcastically relatively more often than the other encodings of surprise, where the level of incongruity is low, but that of performativity may vary, as illustrated in examples (26)–(29). In the first three instances (26)–(28), the level of performativity can be described as relatively high, given the use of such usage-features as capitalization, exclamation marks, multiplied question marks, interjections like wow and gee, the exceptionally emotional discourse manner adopted in (27) or the interactive-dialogic tone established in the first utterance below. The last example (29), on the other hand, is much weaker in enactive properties, its only distinctive feature being perhaps the smiley, which might be claimed to position it slightly higher on the performativity scale than would be the case, for example, with utterance (23) lacking any such characteristics.

(26) Guess what I am doing????......WORKING AGAIN.....Wow what a surprise! Even though I only work 5 days a week, I feel like I am here all the time!! But anyways, I am going to my friend Dee's, boyfriends',mom's house tonight for dinner. (that was a mouth full)

(27) because half of your mother's blood runs through your vains therefore you are inferior to them. your not all italian so you mean nothing until they need something then all of a sudden i'm alive gee what a shock. last time some relative needed a gift for some anniversary we had to go to the damn celebration. wahoo. dad and mom dissappeared on me and left me there with them. never in my life had i wanted to cry so hard so i'd go blind.then rip out my ear drums with a knife. all these relatives that couldn't give so much as a rat's anus about me asking me my age what school i'm in if i'm still in high school, keep in mind at the time i was a freshman. yeah i think i'm still in high school. some of them actually forgot who i was. they had to ask me who i was! one of my aunt's had to remind them all that i'm "mike's daughter". that's all i am mike's fucking daughter, then the
aunt that at least remembered that i'm "mikes daughter" had to ask what my name was!!! i felt so worthless.

(28) Yeah thats right... today was JUST AS BAD AS YESTERDAY!!!! wow what a shock! ive been looking for someone alll day and can't find them!!! ugh and i d k waht to do. I got grounded so i can't go to the Senses fail concert. My quad broke down so i couldn't quad. I have horrible grades.

(29) Chelsea won 2-0 over Middlesborough today! what a surprise, Chelsea wins everything! :)

Finally, the last construction [what the NP] emerges here as being highly related to strong levels of incongruity and performativity, while, at the same time, being disassociated from weak incongruity in combination with strong performativity. This further supports our exploratory results registered in Figure 2 and demonstrates that Construction A can be regarded as the prototypical expression of mirativity in light of the definition proposed in section one. Such a highly performative and incongruent profiling imposed by this construction can be seen in utterances (6), (15) or (21) above or (30) below.7

(30) omg i am so angry right now:@.@:@@ i could literally strangle something. bloody hell. why is it that when people want something they act all nice when the rest of the time they act like total arseholes???? and then expect you to help them regardless of what theyve said before!!!!!!!!????? why the fuck should i have to put up with that????
seriously WTF did i do to deserve that?????

Here, the epistemic state of incongruity, the state of complete shock at the behavior of other people is combined with intense anger, as expressed both verbally by the adjective angry and

7 Arguably, examples such as (18) or (30) might be considered to express not only the epistemic state of incongruity of the conceptualized situation and the speaker’s expectations (it is evident that what has happened is incongruent with what would be expected), but also his/her anger and annoyance at it. As mentioned in footnote 4, this does not necessarily have any bearing upon the functional dimension of incongruity.
graphically by the multiplied use of the emoticon :@. It is further reinforced by the directly ensuing emphatic use of language that specifies, in a somewhat exaggerated manner, this emotional state of the speaker. The epistemic incongruity, in turn, is encoded farther in the example by the use of the expressions why the fuck, which has not been investigated in the study, and wtf. The expressive force of both these encodings of negative surprise is intensified by multiple question marks and exclamation marks as well as the emphatic adverb seriously.

Let us move now to the confirmatory modeling of the data. The results of the polytomous logistic regression analysis are presented in Table 2. Polytomous regression is a form of logistic regression that can be used when the dependent variable consists of more than two nominal outcomes. Arppe (2008) offers a detailed explanation of the method. In our case, since we have three constructions, binary logistic regression, typically used in the literature for constructional alternations, cannot be employed.

The first column in Table 2 lists the two explanatory variables and their specific features with respect to which we expect to be able to account for the linguistic behavior of the three constructions. The next three columns provide the specific estimates for each construction. The estimates that are statistically significant are put in bold. The positive values are indicative of association, the negative of disassociation. That said, we can now consider the results.
Table 2. Polytomous Logistic Regression: Cx ~ Degree of Performativity + Degree of Incongruity

Heuristic: one vs rest

Log-odds:

<table>
<thead>
<tr>
<th></th>
<th>to my NP</th>
<th>what a NP</th>
<th>what the NP</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>(-0.3738)</td>
<td>(-0.3951)</td>
<td>-1.306</td>
</tr>
<tr>
<td>Degree of Incongruity: strong</td>
<td>(-0.3853)</td>
<td>-1.035</td>
<td>1.215</td>
</tr>
<tr>
<td>Degree of Incongruity: weak</td>
<td>-3.62</td>
<td>3.159</td>
<td>-1.449</td>
</tr>
<tr>
<td>Degree of Performativity: weak</td>
<td>(-0.08263)</td>
<td>-1.167</td>
<td>0.66</td>
</tr>
<tr>
<td>Degree of Performativity: strong</td>
<td>(-0.02686)</td>
<td>(0.6232)</td>
<td>(-0.5226)</td>
</tr>
</tbody>
</table>

Null deviance: 742.3 on 1047 degrees of freedom
Residual (model) deviance: 576.2 on 1032 degrees of freedom

McFadden $R^2$: 0.22
Nagelkerke $R^2$: 0.43
C statistic (reference level: to my NP): 0.41
C statistic (reference level: what the NP): 0.27
C statistic (reference level: what a NP): 0.86

The first construction, [to my NP] is strongly disassociated from weak incongruity, which corroborates what we have seen in Figure 3 or Figure 2, where this feature, <Degree of Incongruity: Weak> is maximally distanced diagonally from the data-point representing this construction. No other significant predictors emerge here. The second construction, [what a NP], has three significant predictors that are also sizable in terms of their effect/impact on the overall structuring of the data. The most important predictor here is the positive correlation with weak incongruity, followed by repulsion from strongly performative uses and strongly incongruent events. These correspondences converge fully with the emergent patterns revealed in Figure 2 and the correlations found in Figure 3. Finally, the last construction, [what the NP], is significantly disassociated from weakly incongruent situations, while being clearly attracted to strong incongruity. It is also associated with strong performativity, but in a less pronounced way, given the smaller value of this estimate. Similarly to the two other constructions, in this case too, the respective patterns identified in the multiple correspondence analysis visualized in Figure 2 or the correlations observed in Figure 3 find their support here.

The overall performance of the model can be determined on the basis of the pseudo $R^2$ scores provided at the bottom of Table 2, with the values of 0.22 and 0.43 for McFadden $R^2$ and
Nagelkerke $R^2$, respectively, where, as a rule of thumb, 0.2 and 0.3 are considered indicators of good model fit (Lattin et al. 2003: 486; McFadden 1978: 307). This, put more simply, means that the results can be treated as reliable.

Another important indicator of the performance of the model is the C statistic, given at the bottom of Table 2. This value is informative with respect to the overall predictive power of the model. In other words, it tells us to what extent the generalizations emerging from the analysis can be taken to be indicative of the usage tendencies exhibited by the constructions. Three such scores are provided here, depending on the reference level, i.e., depending on which one of the three constructions is taken as the yardstick against which to compare the usage behavior of the remaining two constructions. As the C statistics demonstrate, the most predictive model is the one, where $[\text{what a NP}]$ serves as the reference level with an excellent value of 0.86. The C statistic obtained when the reference level is $[\text{to + my + NP}]$ is considerably lower, while that of $[\text{what + the + NP}]$ is still weaker in its predictive power. The immediate conclusion one can draw here is that the strongest model is yielded when the construction that has been identified as the least mirative in the correspondence analysis, i.e., $[\text{what a NP}]$, is taken as the reference level and the behavior of the two other more mirative constructions is juxtaposed with it.

To recapitulate, both the exploratory and confirmatory results point toward $[\text{what the NP}]$ construction as the most prototypically mirative, which fully corroborates our hypothesis in this regard. This construction emerges in the study as commonly occurring in highly performatative contexts, where the speaker, being frequently emotionally engaged, also expresses a high degree of incongruity between the conceptualized event and his/her overall system of knowledge, expectations and assumptions. The $[\text{to my NP}]$ constructional profiling of SURPRISE also confirms our hypothesis that this construction will be weaker in its mirative value. However, contrary to our predictions, it does occur in situations where the speaker both re-enacts the conceptualized scene and communicates his or her great disbelief. This pattern was not expected. Finally, the $[\text{what a NP}]$ construal of epistemic incongruity emerges here as the
weakest in its mirative value. It is most frequently used to encode weak incongruity and is significantly disassociated from strongly performative uses. This finding, which also diverges from our predictions, may be linked to the distinct tendency manifested by this construction to be used in ironic contexts. Naturally, no suggestion is made that these constructions are associated with a single usage and, like all formal structures in language, this usage is assumed to represent considerable semasiological variation.

5. Summary

The primary goal of the present study was to ascertain the applicability of the proposed operationalization of the category of mirativity. Secondly, a descriptive case study examined three constructions encoding epistemic incongruity in English, i.e., [what the NP], [what a NP] and [to my NP]. The results of this descriptive study were then interpreted employing the operationalization in order to determine if and to what degree these constructions can be regarded as mirative constructions.

The operationalization of mirativity was based upon the interaction of two dimensions of usage: the conceptual degree of incongruity and the functional degree of performativity. Although there exists no independent means to determine the status or degree of mirativity in the constructions (making it impossible to actually test the accuracy of the operationalization), the operationalization proposed here proved straightforward to apply and appeared to produce coherent intuitively sound results. These results were, in turn, treated quantitatively. In this, we have demonstrated that such an inherently intersubjective phenomenon in language as mirativity, embedded in interaction and negotiated through context, can be operationalized and investigated with corpus-based quantitative methodology.

The results of this descriptive case study reveal a reasonably clear picture of the encoding of mirativity in these constructions. The statistical modeling indicated that there emerges a cline of mirativity with respect to the two factors postulated as critical to its definition. The emergent continuum progresses from [what the NP] through [to my NP] to [what
a NP], with decreasing degrees of performativity and incongruity. This is a finding that corroborates our hypothesis concerning the first construction, which was expected to be the prototypical encoding of mirativity, but it also points to unexpected patterns of language use in the case of the two other constructional profilings of this epistemic state. These revealed tendencies, which are, at least to some extent, incongruent with our hypothesized paradigm, definitely merit further analysis.

By way of conclusion, it should be stressed that the role of addresssee-orientation and descriptivity, raised in sections 3.1 and 3.3, are two lines of investigation that may impact upon mirativity but which were not included in this study. Further research is needed in order to determine whether these usage dimensions should be added to the operationalization. Finally, and perhaps most importantly, the proposed operationalization needs to be tested in other languages and text types, especially in true dialogic language and in languages where it is known that mirative constructions (morphemes or otherwise) exist. If this operationalization can adequately distinguish such forms from other non-mirative, yet epistemic incongruent forms, then it opens up the possibility for quantitative descriptive research. This, in turn, will allow the conceptual-functional category of mirativity to further enter the main stream of grammatical description.

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