THE LANGUAGE OF METEOROLOGY: ADJECTIVES USED IN WEATHER FORECASTS

Karina HAUER, Daniel DEJICA
West University of Timișoara, Politehnica University Timișoara, Romania

Abstract: Weather forecasts are read and listened by millions of people worldwide. In a world where the focus is placed on action, we intend to take a closer look at the parts of speech which give substance to weather forecasts and are used at the same time to describe them, namely the adjectives. Adjectives help users visualize and give meaning to the context in which they are used. The aim of this study is to investigate the use of adjectives in weather forecasts, in order to gain insights on their function, usage, and influence in relation to meteorological discourse.

Keywords: meteorological discourse, meteorology, weather forecasts, adjective use

1. Introduction

Similarly to any other science, meteorology evolved over centuries, and more and more researchers were interest in understanding in a scientific way the patterns and changes of weather. At the foundation of this specific field of study there are a series of disciplines such as physics, geography, mathematics, chemistry, and other sciences, whose fundamental principles might be difficult to difficult to understand by non-specialists. In a similar way, meteorology as a scientific discipline, should find its way of conveying the same information to specialists, but at the same time, to the general public, who uses specific professional genres (Dejica 2011), i.e., weather forecast, for everyday information purposes. The main aim of weather forecasts, as a distinct genre, is to present the conditions of the atmosphere at a given time, in a specific location, and in such a way that this information can be easily accessible to the general public through different channels of communication.

In the past decades, an increasing number of linguists dedicated their research to the study of meteorology discourse and language: weather and space expressions were investigated by Levinson and Wilkins (2006) or Erikson et al. (2012); studies on weather expressions in Inuit were carried out by Pullum (1989), Kaplan (2003) and Regier et al. (2016); meteorological expressions were investigated by Bartens (1995), Keenan (1987: 103) and Croft (1991: 141–142); Ruwet's (1986) studied structural variation in weather expressions and Bauer (2000: 93–150), impersonal verbs including weather verbs in modern and ancient Indo-European languages; last but not least, Langacker (1999 1991) investigated variation in the coding of meteorological events.

Such studies are valuable since they focused on the investigation and analysis of weather verbs, which are essential constituents of action discourse. Another part of speech which contributes to the visualization of facts and of their consequences in action discourse is the adjective, which as far as we know, was not investigated in depth in the context of meteorological discourse and weather forecasts. Adjectives are essential

BUPT

since they contribute to the understanding of the effects of weather, namely they show how mild or heavy the impact of weather phenomena will be.

Traditionally, adjectives are described as modifiers that complement nouns (Payne, Huddleston & Pullum, 2010: 31). According to Pustet (2006), adjectives can be defined within various aspects of language organization, particularly in terms of morphosyntax, semantics, and syntactic usage (Pustet, 2006: 60). As far as the classification of adjectives is concerned, a relevant study comes from Khamying (2007), who classified them into eleven types: descriptive, proper, quantitative, numeral, demonstrative, interrogative, possessive, distributive, emphasizing, exclamatory, and relative adjectives (Khamying, 2007: 174 - 179).

The main aim of this paper is to contribute to the existing studies in the field by investigating the use of adjectives occurring in weather forecasts in terms of on their frequency, types, function and impact.

2. Research methodology and design

In line with existing studies in linguistics, we use a mixed-methods approach, leveraging both quantitative and qualitative methodologies to achieve a nuanced understanding of the data. We use quantitative data analysis to present statistical summaries and numerical representations of the collected data. This quantitative analysis provides an overview of the distribution and frequency of different adjective types across the meteorological forecasts under study. Additionally, qualitative data analysis is used to complete the quantitative findings and to delve deeper into the functional roles of adjectives within the context of meteorological discourse. The qualitative analysis involves detailed examination and interpretation of specific examples and patterns identified within the data, facilitating a more comprehensive response to the research questions posed.

2.1. Corpus

We built our corpus for analysis (Meyer, 2004; Hunston, 2002; Sinclair, 1991) using meteorological forecasts from four distinct online platforms – BBC London weather, Sky News, Met Office, and The Weather Outlook. The forecasts were obtained from different online sources, were written in contemporary English, and were published from February 2023 until February 2024.

The four platforms we selected distinguish themselves from others by their use of textual content rather than using solely symbolic representations of meteorological phenomena. BBC London weather and Sky News, considered leading public service broadcasters in the UK, prioritize the dissemination of factual information to a wide audience. Similarly, The Weather Outlook specializes in offering weather forecasts and data for the UK and select international locations, while the Met Office serves as England's national meteorological authority. Notably, all selected websites provide short-range weather forecasts, leveraging data primarily sourced from the National

BUPT

Meteorological Centre, which is then tailored to suit the purpose and characteristics of each platform.

2.2. Analysis

We used a four-stage analysis, consisting of (1) extraction of adjectives, (2) classification of adjectives, (3) categorization of adjectives based on semantic connotations and grammatical functions, and (4) creation of cohesive conceptual framework.

The first text counts 70 words distributed across seven sentences (Text 1 in the Annex). Out of the seven sentences, only one sentence lacks adjectival modification. From the total of 16 adjectives identified, 13 are descriptive in nature, with nine being purely descriptive (e.g., light, early, heavy) while three adopt a comparative form (e.g., further, clearer, colder), and one is compound (northwest). Additionally, three adjectives have a numerical role, delineating the quantity of the weather phenomenon.

The second text consists of 57 words in 4 sentences (Text 2 in the Annex). Similarly, in one sentence there are no adjectives. All in all, we identified 11 adjectives, of which 10 are descriptive (e.g., cloudy, light, damp); two were used comparatively (e.g., drier, brighter), and one, numerically.

The third text totals 56 words in 5 sentences (Text 3 in the Annex) and features at least one adjective in each sentence. A total of 13 adjectives are used, 12 serving a descriptive function (e.g., southwards, northern, late) and one, a numerical function.

The last text counts 208 words in 11 sentences (Text 4 in the Annex). The 42 adjectives we identified are spread in all the sentences which form the text, and are predominantly descriptive (e.g., next, northern, western); five have a comparative function (e.g., colder, more, windier) and two, a superlative one (e.g., most).

2.3. Representation and interpretation of results

All in all (Fig. 1), the data reveals a consistent use of adjectives across texts: some 20% of the lexical composition in weather forecasts (22.86% of the total words in the first text were adjectives, 19.3% in the second text, 23.31% in the third, and 19.71% in the fourth).

An overwhelming majority of adjectives are used in the positive form, with a notable tendency towards comparative usage and a scarcity of superlative forms. While one might anticipate adjectives primarily characterizing weather phenomena in forecasts, our analysis revealed a predominant focus on spatial descriptors rather than weather attributes. This preference for spatial descriptions over meteorological specificities suggests a nuanced approach to weather forecasting, in which the contextualization of the geographical location assumes precedence over mere climatic conditions.

We also noted the absence of superlative adjectives, which implies a tendency towards describing phenomena in relative, rather than absolute terms. This inclination towards comparatives underscores a nuanced portrayal of weather dynamics, potentially reflecting an emphasis on gradual shifts and nuanced changes rather than extreme conditions.

Moreover, the fact that a substantial number of adjectives is dedicated to spatial descriptors suggests that forecasters prioritize the use of contextual information about the geographical region within which weather phenomena occur, possibly to enhance the audience's spatial understanding and situational awareness.

In essence, while adjectives play a crucial role in shaping the narrative of weather forecasts, their distribution and usage patterns unveil deeper insights into the intricacies of forecast construction. This nuanced interplay between linguistic elements and

BUPT

meteorological information underscores the dynamic nature of weather forecasting, where linguistic choices serve as conduits for conveying not just climatic data, but also contextual nuances and spatial intricacies.

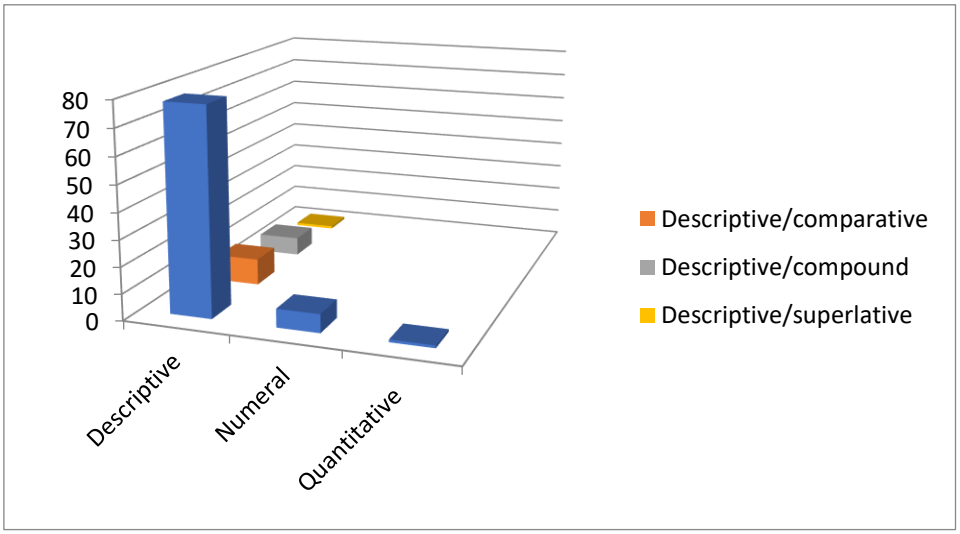


Figure 1. Types of adjectives used in weather forecasts

2.4. System of concepts

A system can be simply defined as “a manner of classifying, symbolizing, or schematizing” (Merriam-Webster Dictionary) or as Ackoff (1994) puts it, “a whole consisting of two or more parts (1) each of which can affect the performance or properties of the whole, (2) none of which can have an independent effect on the whole, and (3) no subgroup of which can have an independent effect on the whole” (Ackoff, 1994:175).

A concept can be defined as “an abstract or generic idea generalized from particular instances” (Merriam-Webster Dictionary) or as “a semantic unit that has linguo-cultural features and characterises speakers of any chosen ethnoculture. While reflecting an ethnic mindset, a concept marks the ethnic language world image and serves as the so-called brick to build “the house of our being” (Maslova, 2004:80).

As such, from a holistic perspective, a system of concepts implies that any system does not exist in isolation but operates within an ecosystem intertwined with other systems. The system of concepts we created in in Figure 2 shows a hierarchical classification of the adjectives we extracted from our corpus, and which we classified into six units: temporal, spatial, quantity, intensity, visibility, and temperature.

At temporal level, five adjectives denoting the timing of occurrences were discerned within the texts: early, next, late, overnight, and first. Spatial descriptors extracted from the texts provide the context regarding the geographical location of the weather phenomena, and include terms such as northwest, south, north, east, southwards, southern, central, western, far, and extensive. Adjectives expressing quantity designate the magnitude or volume of weather phenomena, exemplified by terms like few, little, mostly, most, more, and much. In terms of intensity, eight adjectives were identified,

BUPT

including descriptors such as light, heavy, mild, high, and patchy. Visibility descriptors include adjectives depicting the state of perceptibility, such as clear/clearer, cloudy, sunny, starry, and fine. Last but not least, temperature-related adjectives show the ambient warmth or chill, such as like cooler, cold, wintry, windy, and dry/direr. The six classes of adjectives are illustrated in Figure 2.

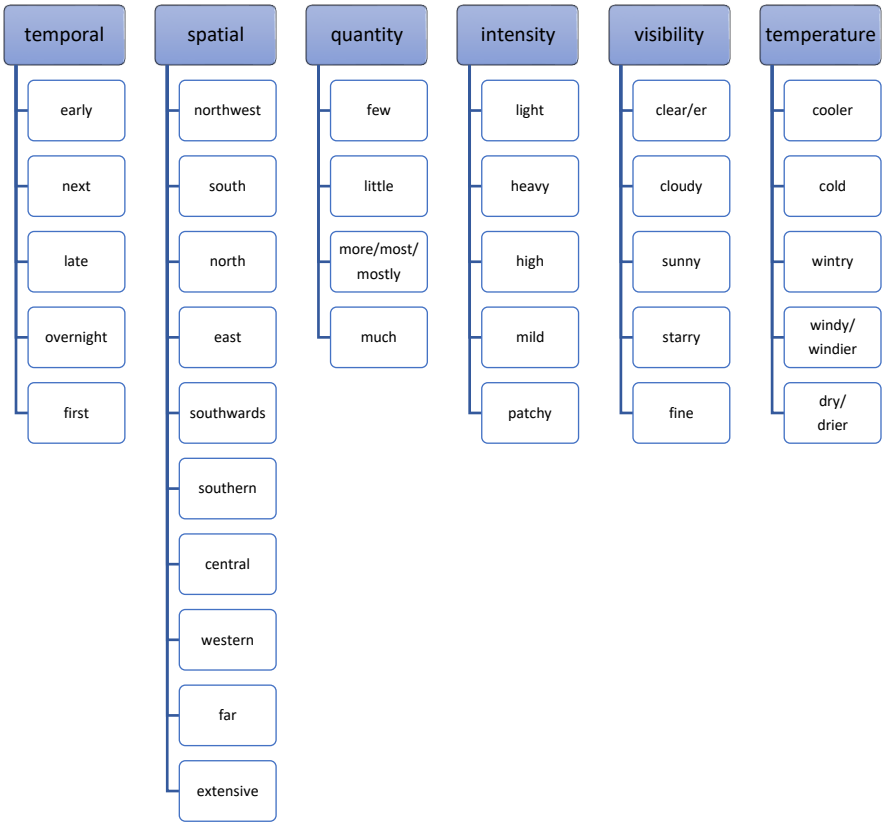


Figure 2. System of concepts: adjectives occurring in weather forecasts

3. Limitations of the study

The results of this study reveal two primary limitations that need further consideration. First, the sample size of popular science articles used in this research was restricted. Future quantitative research should focus on a larger dataset so as to validate our findings. Second, defining and understanding adjectives have long been subject to debate and sometimes to conflicting perspectives. In our study study we used Khamying's (2007) model for the classification of adjectives, yet other classifications may reveal different findings. Despite these limitations, our findings show that adjectives play a significant role in communicating weather forecasts and highlight the importance of their use in specialised discourse. In addition, the findings may be used in EFL classes (Rozenfeld, 2017) or translation (Dejica, 2010; Dejica & Stoian 2016) to approach the

BUPT

problems and difficulties specialised discourse and terminology may raise to communicators and translators.

4. Conclusions

Adjectives play an essential role in everyday communication, as they depict, portray or illustrate the environment, people, objects, emotions or phenomena. Their role is fundamental in weather forecasts as well, as they may enhance understanding of atmospheric conditions. Our analysis showed that adjectives are extensively used in weather forecasts, representing 20% of the total number of words in the corpus we analysed. The fact that there was only little variation in the four texts we analysed, from 19.3% to 23.86%, may contribute to the formulation of a general tentative conclusion according to which some 20% of weather forecasts consist of adjectives. As far as their classification is concerned, our study revealed a predominance for the descriptive and quantitative types, with fewer instances of compound, comparative, or superlative forms. These figures and findings may also be an indicator of the role and importance of further lexical and terminological studies in the field of meteorology.

References

1. Ackoff, R.L. 1994, Systems thinking and thinking systems. Syst. Dyn. Rev., 10: 175-188. https://doi.org/10.1002/sdr.4260100206
2. Bartens, Raija. 1995. Suomalais-ugrilaisten kielten meteorologisista ja muita luonnonolosuhteista merkitsevistä ilmauksista (on the meteorological expressions in Finno-Ugric lanuages). Journal de la Société Finno-Ougrienne 86: 33–65.
3. Bauer, Brigitte. 2000. Archaic syntax in Indo-European: the spread of transitivity in Latin and French. Berlin/New York: Mouton de Gruyter
4. Croft, W. 1991. Syntactic categories and grammatical relations: The cognitive organization of information. University of Chicago Press.
5. Dejica, D. 2010, 'Approaching the Information Universe for Translation Purposes: The Atomistic Perspectives'. In In Frentiu, L. (ed.) *Romanian Journal of English Studies*, 7/2010. Timisoara: Editura Universitatii de Vest, pp. 252-264.
6. Dejica, D. 2011. 'Identifying and analysing professional genres' peculiarities for translation purposes: a methodological approach'. In Frentiu, L. (ed.) *Romanian Journal of English Studies*, 8/2011. Timisoara: Editura Universitatii de Vest. pp. 155-166
7. Dejica, D. 2016. 'A Standards-Based Contrastive Analysis of Online and Printed Technical Translations in Romanian'. In Dejica, Daniel & Gyde Hansen, Peter Sandrini, Iulia Para (eds.) *Language in the Digital Era. Challenges and Perspectives.* De Gruyter Open: Warsaw/Berlin. pp. 14-28.
8. Dejica, D. and C. Stoian. 2016. 'Properties and qualities of technical translations in Romanian'. In Professional Communication and Translation Studies, 9/2016. Timisoara: Editura Politehnica. pp. 131-138.
9. Eriksen PK, Kittilä S, Kolehmainen L. 2012. Weather and language. Lang Linguistics Compass 6(6):383–402. https://doi.org/10.1002/lnc3.341
10. French. Berlin/New York: Mouton de Gruyter.
11. Hunston, S. (2002). Evaluation and organization in a sample of written academic discourse. In Advances in written text analysis (pp. 205-232). Routledge.

BUPT

12. Kaplan LD. 2003. Inuit snow terms: how many and what does it mean? In:Trudel F(ed) Building capacity in Arctic societies: dynamics and shifting perspectives. CIÉRA, Montreal, pp. 263–269
13. Keenan, E. L. 1987. Multiply-headed noun phrases. Linguistic Inquiry, 18(3)
14. Khamying, S. (2007). Advanced English Grammar for high learner. Bangkok: V.J. Printing.
15. Langacker, R. W. 1995. Cognitive grammar. In Concise History of the Language Sciences (pp. 364-368). Pergamon.
16. Levinson SC, Wilkins DP. 2006. Grammars of space: explorations in cognitive diversity. Cambridge University Press, Cambridge
17. Maslova, V.A. 2004. Cognitive linguistics. Minsk: Tetra Sistems, pp: 80
18. McElroy, W. D. 1999. *A Manual of Style*, 12th ed. Chicago: The University of Chicago Press.
19. Owyoung, A. 1979. "High Resolution Coherent Raman Spectroscopy of Gases". In H. Walther and K. W. Rothe (eds.) *Laser Spectroscopy IV.* New York: Springer- Verlag, pp. 175-182.
20. Pullum GK. 1989. Topic…Comment: the great Eskimo vocabulary hoax. Natural Lang Linguistic Theory 7:275–281.
21. Regier T, Carstensen A, Kemp C. 2016. Languages support efficient communication about the environment: words for snow revisited. PLoS ONE 11(4):e0151138.
22. Rozenfeld, J., 2017, “Efficiency in Teaching English As a Foreign Language”, in Romanian Journal of English Studies, Volume 14 (2017): Issue 1, pp. 132-140.
23. Ruwet, N. 1986. Note sur les verbes météorologiques. Revue québécoise de linguistique, 15(2), 43-55.
24. Sinclair, J. (Ed.) (1991). Corpus, Concordance, Collocation. Oxford, UK: Oxford University Press.
25. Thole, K., 1997. "Exploring the Possibility of Primitive Life on Mars" in *Undergraduate Engineering Review,* available at http://tc.engr.wisc.edu/tcweb/uer/uer97/thole.html [accessed May 2009].

Annexes

Sentences	Adjective	Type	Description
Light rain and drizzle across the south should clear early afternoon.	light early	Descriptive Descriptive	Describes the weather phenomena. Describes the time of the occurring phenomena.
A few heavy showers possible for parts of Cornwall at first.	few heavy possible first	Numeral Descriptive Descriptive Numeral	Describes the amount of the occurring phenomena. Describes the intensity of the occurring phenomena. Describes the probability of the occurring phenomena. Describes the time of the occurring phenomena.
Otherwise, mainly fine ahead of further rain, which will affect northwest Scotland from around midday.	fine further northwest	Descriptive Descriptive /Comparative Descriptive/compound	Describes the state of the occurring phenomena. Describes the amount of the occurring phenomena.

BUPT

			Describes the location of the occurring phenomena.
Temperatures near normal.	normal	Descriptive	Describes the temperature.
Clear and cold for much of England and Wales, though clouding up from the north.	clear cold much	Descriptive Descriptive Quantitative	Describes the visibility. Describes the temperature. Describes the location.
Cloud and rain pushes south across Scotland.			
Clearer, colder weather follows to the far north.	clearer colder north	Descriptive/comparative Descriptive/comparative Descriptive	Compares the weather in different locations (north/south). Compares the weather in different locations (north/south) Describes the location.

Table 1. Analysis of Text 1

Sentences	Adjective	Type	Formation
This morning will see largely cloudy skies and a few lingering spells of light rain.	cloudy few light	Descriptive Numeral Descriptive	Describes the visibility. Describes the amount of the occurring phenomena. Describes the intensity of the occurring phenomena.
Remaining cloudy and damp in the early afternoon, but turning drier and brighter towards the end of the day.	cloudy damp early drier brighter	Descriptive Descriptive Descriptive Descriptive/comparative Descriptive/comparative	Describes the visibility. Describes the humidity. Describes the time. Describes and compares the humidity. Describes and compares the visibility.
Tonight, will see any remaining clouds move off to the east early leaving clear skies.	east early clear	Descriptive Descriptive Descriptive	Describes the location. Describes the time. Describes the visibility.
However, clouds increase from the north toward dawn.			

Table 2. Analysis of Text 2

Sentences	Adjective	Type	Formation
Outbreaks of rain slowly push southwards reaching northern England and Wales by the late afternoon.	southwards northern late	Descriptive Descriptive Descriptive	Describes the location. Describes the location. Describes the time.
Over high ground they could fall as sleet or snow.	high	Descriptive	Describes the location.

BUPT

To their north sunny spells develop but there will be a few wintry showers in Scotland.	north sunny few wintry	Descriptive Descriptive Numeral	Describes the location. Describes the visibility. Describes the amount of the occurring phenomena. Describes the way in which the phenomenon is occurring.
Southern and central Britain remains mostly dry.	southern central dry	Descriptive Descriptive Descriptive	Describes the location. Describes the location. Describes the humidity.
Mild in the south, cold in the north.	mild cold	Descriptive Descriptive	Describes the intensity. Describes the temperature

Table 3. Analysis of Text 3

Sentences	Adjective	Type	Formation
An increasingly northerly flow will make it colder over the next few days, with overnight frosts returning.	colder next few overnight	Descriptive/comparative Descriptive Numeral Descriptive	Describes and compares the temperature. Describes the time. Describes the time. Describes the time.
Northern and western parts will be mostly fine this evening, while central and southern Britain will be quite cloudy with showers or more general patchy rain.	northern western fine central southern cloudy more general patchy	Descriptive Descriptive Descriptive Descriptive Descriptive Descriptive Descriptive/comparative Descriptive Descriptive	Describes the location. Describes the location. Describes the visibility. Describes the location. Describes the location. Describes the visibility. Describes and compares the weather phenomena. Describes the weather phenomena. Describes the weather phenomena.
Southern Britain looks like staying breezy and mostly cloudy overnight, with rain at times, while the far north can expect a few showers.	breezy cloudy far few	Descriptive Descriptive Descriptive Numeral	Describes the wind. Describes the visibility. Describes the location. Describes the amount of the occurring phenomena.
Elsewhere, central Britain will see cloud and any rain clearing, leaving most northern, central and western parts dry under starry skies.	central most northern central western dry starry	Descriptive Descriptive/superlative Descriptive Descriptive Descriptive Descriptive Descriptive	Describes the location. Describes the location. Describes the location. Describes the location. Describes the location. Describes the humidity. Describes the visibility.
An extensive frost will develop in the countryside there as winds ease.	extensive	Descriptive	Describes the
Southern Britain will see cloud and occasional rain largely clearing tomorrow morning, then most places will be dry and	Occasional most dry sunny	Descriptive Descriptive Descriptive Descriptive	Describes the Describes the Describes the humidity. Describes the visibility.

BUPT

sunny, but cloud and rain will take over the increasingly windy north of Scotland.	windy	Descriptive	Describes the location.
It will be cooler than recently, although still a degree or so above average.	Cooler	Descriptive/comparative	Describes the temperature.
There will be little change through the afternoon, although rain will take over more of northwest Scotland, while Shetland should dry up.	Little more northwest	Descriptive Descriptive/comparative Descriptive/compound	Describes the quantity. Describes the location. Describes the location.
Friday will see cloud and increasingly light and patchy rain spreading south, with sunshine and just a few showers following.	light patchy south few	Descriptive Descriptive Descriptive Numeral	Describes the intensity of the occurring phenomena. Describes the weather phenomena. Describes the location. Describes the amount of the occurring phenomena.
Southern parts will be mostly fine.	southern fine	Descriptive Descriptive	Describes the location. Describes the location.
Temperatures will be much like Thursday's, but it will be windier in the south.	Much windier	Descriptive Descriptive/comparative	Describes the amount of the occurring phenomena. Describes and compares the locations.

Table 4. Analysis of Text 4

BUPT