What is Linguistic Redundancy?

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Abstract

Linguistic redundancy is a multifaceted phenomenon within language that illustrates that successful communication is not merely a superficial quality of language, but a constraint at the heart of its origin and the dynamics of its development. Redundancy is deeply rooted in language and one can find many redundancy features within grammar, syntax and other aspects of language. We propose a new classification of linguistic redundancy into what we call 'contextual redundancy' and 'grammatical redundancy.' This new classification is powerful enough to incorporate and enlighten all forms of linguistic redundancy known to us.

keywords: linguistic redundancy, grammar, syntax, comprehensibility, concordance, double negatives, word order, spelling rules, synonyms, repetition, ambiguity, emphasis.

It is good to express a matter in two ways simultaneously so as to give it both a right foot and a left. Truth can stand on one leg, to be sure; but with two it can walk and get about. (Friedrich Nietzsche)

1   Introduction

In descriptive as well as prescriptive linguistics redundancy has commonly been regarded as a negative quality of language. The prescriptive grammarians advise us to eliminate wordiness, pleonasms and repetitions that clutter one's writing and one's speech. In descriptive linguistics, even though it is acknowledged that natural languages are highly redundant, there is an explicit attempt to formulate descriptions of them in a nonredundant manner. It has even been argued, for example, that the mental lexicon processes language in a nonredundant fashion (Halle, 1971; Halle and Clements, 1983). The argument is that a nonredundant mental lexicon preserves a certain

economy (either in memory storage, memory retrieval, or both) that allows the participants of a conversation speedy access to the words in their mental lexicon. One of the maxims of Grice, i.e., Quantity, postulates that those participating in a language activity should employ as many distinctive features as necessary to convey the message; not more and not less. An economy of expression is thought to be equivalent with clear and distinct communication.[1]

Although language redundancy has had its critics, a place for redundancy has also been recognized in the psycholinguistic and linguistic literature. Some have argued that redundancy production seems to coincide with mental development of a child, whereas others have explicitly set out to prove the value of redundancy in communication.

One disadvantage of the redundancy discussion is the striking absence of a proper definition of the subject in question: What is redundancy? The literature shows a wide interpretative range of definitions, some bearing on psycholinguistics, others purely on linguistics. In this paper, we shall attempt to accomplish two things. First, we shall give a short but comprehensive overview of what counts as redundancy. We distinguish two kinds of redundancy: (i) grammatical redundancy, and (ii) contextual redundancy. Having clarified these forms of redundancy, we shall secondly set out to demonstrate the value of redundancy in several kinds of language processes. In some cases the redundant features are repeating bits of information to ensure comprehensibility. In other cases, what appears to be redundant, is actually not because the redundancy is serving a function other than repetition. It may used to contrast, to emphasize, to intensify, to resolve ambiguity or to serve other, more rhetoric purposes.

2 Forms of Redundancy

2.1 Introduction

The subject of linguistic redundancy is not an entirely new issue. In the past several decades linguists and people outside the field of linguistics have been engaged in a study of redundancy. In the field of statistics, the redundancy of an expression is a concept that appears in Information Theory. In the field of psychology, the level of redundancy used in speech is sometimes thought of as a measure of the developmental stage of an individual. In linguistics itself, language redundancy has been the subject of several empirical studies.

Out of this variety of disciplines several different definitions of redundancy have emerged. These definitions are basically of three different kinds. First there are the substantial definitions that try to capture what redundancy essentially is. Secondly, there are some operational definitions that attempt to quantify (a certain aspect of) redundancy. Finally, there are some functional definitions

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[1]Grice's maxims are the elaboration of Grice's Cooperation principle: "Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged."

of redundancy that focus on what redundancy does, i.e., the function of redundancy. There are flaws in all of these definitions. Moreover, some of them are not at all linguistic. Our major objection is that these definitions are incomplete, too simple and often confuse the essence of redundancy with its function.

Before we give our own definition we shall set out by reviewing several substantial definitions of redundancy from the literature. All define linguistic redundancy from the point of view of information communication. Entering the field from a statistical angle, Campbell determines that the "extra ration of predictability is called redundancy" (Campbell, 1982: 68). Stantland writes that "redundancy is overdetermination" (Stantland, p. 56). Overdetermination and increased predictability both suggest that repetition of information is the essence of redundancy. We shall incorporate this idea. Hunnicut hints at a more linguistically substantial definition, when she argues that "'Redundancy' [is] the systematicity in one's language (and speech). This refers to the information in a complete sentence over and above that which is essential." (Hunnicut, 1985: 53) This definition suggests that the rule governed behavior of language, i.e., the grammar, may be instrumental with respect to linguistic redundancy. We shall return to this idea in the next section when we put forward our own definition of grammatical redundancy. In some experimental studies, one can find certain operational definitions of linguistic redundancy. The qualitative notion of redundancy is replaced by operational quantity. Hunnicut quantifies redundancy as follows:[2]

> [Redundancy is] the fraction of those people who do correctly guess the omitted word in a spoken Swedish sentence where that particular word has been replaced by an equally long beep. (Hunnicutt, 1985: 47)

The majority of definitions of redundancy found in the literature are functional in nature. These definitions concentrate on the purpose of redundancy. Nubold and Turner, for instance, link redundancy directly to the insurance of comprehensibility of a communicated message.

> Redundancy is a feature of an information source which insures that the communication receiver is able to reconstruct a message that has somehow suffered from transmission interference or deletion, and so interpret it satisfactorily. (Nubold and Turner, 1987: 33-4)

Campbell expresses a similar idea, although on a slightly more statistical linguistic level, when he argues that "Redundancy reduces error by making certain letters and groups of letters more probable, increasing predictability." (Campbell, 1982: 72) At the end of her experimental study, Hunnicut concludes that

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[2]Hunnicutt makes a distinction between what she calls "redundancy" and "probability." The distinction lies in the criterion for what counts as "correct". Her "redundancy" has a weaker criterion of correctness than "probability:" in the case of redundancy a word is correctly guessed if the semantic meaning of that word roughly corresponds with the omitted word, whereas in the case of probability, the guessed word should be the actual word.

"Redundancy" [is] the systematicity in one's language (and speech). This definition refers to the information in a complete sentence over and above that which is essential. ... Other research on redundancy in speech has frequently been concerned with the ability to use this systematicity in language in certain conditions. Accessibility to stimuli from which to make systematic inferences may depend upon environment and manner of speaking. In the presence of noise or a manner of speaking that degrades the speech, one would expect information (and redundancy) to be decreased. In such a situation, a listener would not be able to take advantage of a language's systematicity to the same extent. (Hunnicut, 1985: 53-4)

Given the idea that redundancy rescues communication in cases of a failure in the communication system, it takes one more argumentative step for concluding, as Campbell does, that "redundancy makes complexity possible." (Campbell, 1982: 73) According to Campbell, we should think of communication failure not as a marginal annoyance but as an intricate part of any communication system. Therefore, redundancy in practical communication is the only way to transmit a complex message.

We shall use all of these ideas to develop a comprehensive definition of redundancy. In our discussion of the literature one can observe two diverging movements. One stresses that redundancy is a form of spurious use of language, whereas the other identifies redundancy as a certain forced systematicity within language. In order to be comprehensive in our definition these two elements have to be incorporated. In the next two sections we shall propose two new definitions of redundancy. They can be contrasted as follows:

Grammatical redundancy is internal to the language system, is systematic and obligatory, whereas contextual redundancy is voluntary. Contextual redundancy involves the judgment of the speaker concerning the receptor's background or it may simply be used to achieve a certain rhetorical effect.

In the later part of this paper we shall focus on the possible functions of redundancy and give examples of how each of the redundancy forms accomplishes its goal in its own particular way.

2.2 Grammatical redundancy

Grammatical redundancy is the internal systematicity and rule governed behavior of a language in which two or more of its features serve the same function. Grammatical redundancy is obligatory, i.e., its elements are generated systematically and one of the elements of the redundancy may not arbitrarily be omitted; it is internal to the language in the sense that it is generated from grammatical rules and is independent of situational, contextual and nonlinguistic considerations; it is truly redundant since it serves only to repeat information already given by another feature.[3]

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[3]However, note that the fact that it is truly redundant does not diminish the fact that it is obligatory.

Example 1: The English -s

English requires the morpheme -s to mark third person singular verbs in the present tense. Since English is not a 'pro-drop' language,[4] the presence of an expressed subject makes the -s morpheme redundant. That morpheme, nevertheless, is obligatory. According to the grammatical rules of English, the speaker may not use the -s in some contexts and omit it in others. The -s morpheme is semantically superfluous since it offers no more information than is already expressed by the subject of the sentence.

Example 2: Questions

Redundancy also plays an important role in the formation of English questions. Notice in the examples below that most sentences have at least two features that indicate the interrogative nature of the expression. We give several examples.

Information questions:
(1)(a) "How is your mother?"[5]
The interrogative markers in this sentence are:

1. Interrogative word: "how."

2. Subject-predicate inversion.

Questions of this type, called information questions, begin with a so-called *wh*-interrogative word and seek new information. The interrogative word signals a question to the listener. Grammar also demands the inversion of subject and predicate, which again signals, although does not completely determine, that the sentence is a question. There are also other types of information questions, for instance the following:
(1)(b) "Where did you buy that car?"
In this example the interrogative markers are:

1. Interrogative word.

2. Introduction of the auxiliary, "did."

3. Subject-auxiliary inversion.

In this example there are three cues that indicate the question. The additional, obligatory introduction of the auxiliary in this sentence flags the interrogative nature of the sentence. There are,

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[4]'pro-drop' language: language that allows omitting personal pronouns in the subject position, such as Spanish or Italian.

[5]Notice that the intonation pattern of this type of question is the same as that of an affirmative statement, for instance: (i) "She is my mother." [intonation pattern: /2 3 1 ↓/]. So intonation is not a question marker in information questions in English. Other languages sometimes do employ the rising intonation to mark information questions. For instance, in Dutch the sentence (ii) "Wat ben je aan het doen?" (translation: "What are you doing?") has an initially dipping and then rising tone on the last word "doen" [intonation pattern: /2 1 3 ↑/].

however, some information questions that have only one characteristic that marks them a question. These are questions that start with "who" as the subject of the sentence:

(1)(c) "Who called him last night?"

Only "who" signals the question. If there is a person that happen to be called Hu, then phonetically there would be no distinction between the question "who called him last night?" and the declarative sentence, "Hu called him last night." Think about the famous "Who's on first" routine, immortalized by Abbot and Costello.

Yes/no questions

Yes/no questions are different from information questions in that they already include all of the information. The receptor is expected to either confirm or deny that information. For example,

(1)(d) "Do you like chocolate?"

The markers of interrogativity here are

1. Introduction of the auxiliary "do,"[6]

2. Introduction of a *yes/no question* intonation pattern.[7]

Notice that there is no subject-predicate inversion. The same holds true for the following example of a tag question:

(1)(e) "You went to the theater, didn't you?"

Although in this instance the tag "didn't you," its associated intonation pattern and the subject-predicate inversion in the tag itself make the sentence interrogative. However, occasionally, you may hear: "You went to the theater, did ye." In this case the tag is slightly less informative. Not only because its intonation is constant, but also because the tag does not conform to standard rules of English grammar.

The following examples of *yes/no questions* are taken from the realm of spoken English. Besides signalling a question they also express a certain amount of surprise.

(1)(f) "She is the teacher??"

(1)(g) "Me marry him??"

In these sentences there are at least two markers of interrogativity, to wit:

1. A rise of intonation,

2. (Double) stress.

It is interesting to note the use of the objective case in sentences that use verbs other than "to be." That is, for example, in the sentence "Me marry him??", the use of "me" rather than "I". Whether

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[6]The interrogative marker in yes/no questions can be either the auxiliary "do" or "be." For instance, "Are you eating chocolate?"

[7]The intonation pattern is /2 3 ↑/.

this switch marks a question or whether it serves some other purpose needs to be investigated. For our purposes it is enough to point out the other two markers of interrogativity as a sign of redundancy. An interesting example are yes/no questions that consist of only one word. Despite the fact that they have only one word, their linguistic phonetic structure is all but elementary.

(1)(h) "I went to the theater last night," I told him. "You?" he answered.

In the sentence "You?" there is both a rise of intonation and heavy stress.

Thus we can see that English clearly has a backup system for ensuring that certain utterances are understood as questions. Most question sentences are equipped with more than one question marker.

Example 3: Concordance of adjectives and articles with noun in gender and number

In many languages there is an agreement of gender and number between adjective/article and noun. This is called concordance. For example, in Italian:

(2)(a) "*La* donna è bell*a*."
      'The woman is beautiful.'
(2)(b) "*Le* donne sono bell*e*."
      'The women are beautiful.'

Notice the redundant coding of number in both these sentences. Each word in the first sentence indicates singularity, whereas all four words in the second sentence mark plurality. In Dutch concordance is less obvious than in, for instance, Italian or Spanish, but it is there. "*Het* huis" ('the house') becomes "*de* huiz*en*" ('the houses') in the plural. Concordance is a typical example of grammatical redundancy that, in the languages in which it is present, is observed very strictly.

Example 4: Indirect object pronoun redundancy

When in Spanish a sentence contains a personal indirect object, the redundant indirect object pronoun is used in addition to that object. Consider the following examples:

(3)(a) "Le di el libro a Stefano."
      To him I gave the book to Stefano.
      'I gave the book to Stefano.'
(3)(b) "Les di el libro a Stefano y Cristina."
      To them I gave the book to Stefano and Cristina.
      'I gave the book to Stefano and Cristina.'

There is no additional information transmitted by the redundant "le" or "les." The indirect object pronoun is truly redundant.

Example 5: Double negatives

Especially in the Romance languages the negation is indicated by obligatory double negatives. For example, in Italian,

(4)(a) "Non voglio mangiare niente."
      Not I want to eat nothing.
      'I don't want to eat anything'

or in Spanish,

(4)(b) "No voy a decir nada a nadie nunca jamas."
       Not I shall to say nothing to nobody never.
       'I shall say nothing to anybody ever.'
or in French,
(4)(c) "Je ne veux pas pleurer."
       I not want not to cry
       'I don't want to cry.'
In these Romance languages the double negation seems to be triggered by the need for a negative particle before the verb. In cases were there is already a negative word before the verb, no double negative is required, as in, for instance:
(4)(d) "Nadie viene a la fiesta."
       'Nobody comes to the party.'
Double negatives introduce a redundancy in the sentence that reduce the possibility of a mistake. Languages that are not equipped with this form of redundancy often cause misunderstanding among speakers, such as the common confusion between "I can" and "I can't." In British English this misunderstanding is less prevalent than in American English due to the (i) vowel change in "can't" ('kæn' vs. 'kant') (ii) the final "t" in British English is more articulated than in most dialects of American English. Perhaps it is not surprising that in certain socio cultural dialects of English forms like "I can't give you no money" have become perfectly acceptable. Even in more general mainstream socio linguistic environments of spoken English, redundant solutions like the tag "yes" and "no" are commonplace to solve the *can-can't* confusion. For example: "I can't give you money – no" or "I can give you money – yes."

Example 6: Word order
Although it may be harder to recognize word order as a form of redundancy, the word order of a sentence constitutes one of the most important linguistic coding systems besides the words and expressions themselves. Probably everyone, albeit with quite some trouble, understands that "Her book the he gives." stands for the information that a male subject hands over a book to a female subject. However, normally the same information is coded as in the following sentence:
(5)(a) "He gives her the book."
It is clear that the word order in the sentence does not provide extra information. Nevertheless, it does present the information (i.e., what is the subject, what is the indirect object, etc.) in a more accessible manner, simply by conforming to the expectations that the receptor has of a sentence.

Example 7: Spelling
In much of the same way that word order operates as a form of linguistic redundancy in any spoken or written statement, so do the rules of spelling function typically in written expressions, i.e., by conforming to a pattern of expectation in the reader. A stereotypical reader would probably understand the sentence: "Xt xs prxbxblx trxx thxt thx Xnglxsh wrxttxn lxngxxgx cxn dx wxthxxt vxwxls." However, it is much more pleasant to read the same information, when it is redundantly coded as:
(6)(a) "It is probably true that the English written language can do without vowels."
Furthermore, the rules of spelling require that "evereewan shoot edher too the saim spellin" or

"averea-one shud athir tu the saam spallin" are written as:

(6)(b) "Everyone should adhere to the same spelling."

What this means is that a uniform spelling increases the redundant coding of an expression and thereby increases the comprehensibility of the utterance or written text.

Final remarks

The examples in this section have demonstrated the systematic and obligatory nature of grammatical redundancy, and that systematicity and compulsoriness are at the heart of this form of redundancy. To be complete we must point out that there are sporadic cases in which grammatical rules leave alternatives and are not completely obligatory. One example is the future tense. Some Romance and Germanic languages allow an alternative to the redundant future. Besides the redundant form there coexists a nonredundant option. We shall not pursue this point as it seems to be beyond the scope of this paper.[8] Another example of the less than obligatory nature of grammatical redundancy is when there exist spelling alternatives. In American English, for example, both "thru" and "through" are accepted forms of spelling.

2.3   Contextual redundancy

Contextual redundancy is the repetition of information that is, in a grammatical sense, nonobligatory. This repetition consists of the reproduction of identical elements of information or of elements that are only apparently identical. Contextual redundancy is not systematically generated by grammatical rules, although nongrammatical circumstances may suggest or require its use. Such circumstances include socio linguistic and psycho linguistic factors. Unlike grammatical redundancy there is not one kind of contextual redundancy and a subcategorization can be made on the basis of the structure of the redundant expression. We propose four kinds of contextual redundancies, however the categories do not seem to be completely mutually exclusive.

1. identical or synonymous repetition

2. isolating, salient repetition

3. contrasting repetition

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[8]Future tense in several Romance and Germanic languages is less redundantly coded. Markers of future tenses are regularly omitted when adverbs of time are present. For example, future is indicated by "I will" or "I am going to." The sentence: (i) "She will get married when she graduates" often becomes (ii) "She's getting married when she graduates" even though this event may be four years from now. Note that the present progressive is substituted for the future tense. The present progressive can also substitute for "to be going to," as, for instance, in: (iii) "She's going to work this weekend" which becomes (iv) "She is working this weekend." Again, the present progressive indicates the future here. However, there seem to be some limits to the exchangeability of future tense and present progressive. It would, for instance, be ungrammatical to say: (v) "I am studying in Chicago in 2010," supposedly meaning (vi) "I am going to study in Chicago in 2010." The reason may be that the continuous aspect of the action prevents the exchange. Sentences with a nondurational aspect often allow the exchange of future tense and present progressive. (vii) "I am flying to Chicago in 2010." is a perfectly fine sentence where the present progressive replaces the future tense.

4. distinguishing, differentiating repetition

Category 1: Identical or synonymous repetition

This kind of redundancy occurs when the expression contains two (or more) identical or synonymous words or subexpressions. It is important to point out that we do not argue that an identical meaning – semantically or socio linguistically – would be conveyed if the redundant part is dropped. Some examples:

(7)(a) "The green, green grass of home."
(7)(b) "I am completely and entirely crazy about her."
(7)(c) "I had a blue, blue Christmas."
(7)(d) "Last year I visited the Eiffel Tower, the tallest steel construction in the center of Paris."

From the examples it is clear that the redundant expressions often do carry a semantic goal. However, we shall postpone a discussion of the purpose of this form of redundancy to next section and concentrate here only on the structure of the redundancy.

Category 2: Isolating, salient repetition

An isolating redundant expression contains at least two subexpressions, of which one implicitly contains one or more features or characteristics of the other. In other words, the isolating or salient form of contextual redundancy is constituted by one word group that implicitly repeats what the other word group explicitly expresses. Some examples:

(8)(a) "I love the salty sea."
(8)(b) "I live in Chicago, Illinois."
(8)(c) "Can we postpone this till later?"
(8)(d) "Please, endorse the check on the back."

Whereas the third and fourth examples clarify the verb – maybe due to the ignorance or supposed ignorance of audience or speaker – the first and second examples isolate and stress a specific feature of the sea and Chicago respectively.

Category 3: Contrasting repetition

Contrasting redundancy occurs when two (or more) words or expressions that semantically constitute a contrast are repeated or in some other way redundantly coded. For instance, words in an English sentence that are contrasted can receive additional emphasis – even though the words by themselves are sufficient to express the contrast. Spanish possesses the possibility to contrast such words through actually repeating the contrasted elements. For example, take the following sentence in English and in Spanish:

(9)(a) "*I* like coffee and *you* don't."
(9)(b) "A mi me gusta el cafe y a ti no te gusta."
      To me to me enjoy the coffee and to you not to you enjoy.
      'I like coffee and you don't.'

The spoken English sentence receives extra stress on "I" and "you." The spoken Spanish sentence expresses this contrast by actually repeating "I" ("a mi" and "me") and "you" ("a ti" and "te"). Another example of the contrasting form of contextual redundancy is:

(9)(c) "Although his parents are Asian, his eyes are blue and not dark."

In this case the English sentence employs the tag "and not dark" to increase the implicit contrast expressed in the sentence.

Category 4: Distinguishing, differentiating repetition

The distinguishing or differentiating form of contextual redundancy is a form of repetition of information in a context of differentiating one object from another. Many words or expressions that are not ambiguous in one context, may be ambiguous in another. For example, for an inhabitant of Scranton in northeast Pennsylvania the word Carbondale can mean only one thing: a town 16 miles to the North, whereas for someone in Florida mentioning Carbondale could cause confusion. Was Carbondale, Pennsylvania the subject of speech? Perhaps Carbondale, Illinois, or maybe some other Carbondale? For the Scrantonian the use of "Pennsylvania" would be repetitive, whereas for the Floridian it would provide necessary information. It is the conjunction of the city name and the word, that in the unambiguous context would be considered repetitive, i.e., that creates a distinguishing repetition. This form of contextual redundancy is probably the most contextual of all. In order for it to occur it requires a context with possible alternatives besides the one being singled out in the expression. In order to give more examples of differentiating repetition a brief description of the context seems necessary:

(10)(a) [You are asked to point out the bank robber in a line-up of a short man with glasses and a tall man without glasses. You say:] "It is the short one with glasses."

(10)(b) [Sonnenschein experiment: twenty-four distinct pictures divided in six equally sized groups; the groups are given colored boundaries. You say:] "I am looking at the monkey in the group with the red boundary."

Another way of describing the structure of differentiating redundancy is as the disambiguation of a word or expression in an unambiguous context with another word or expression that is considered nonrepetitive in the ambiguous context of that first word.[9]

Final remarks

We believe that this categorization is a comprehensive one, even though the boundaries between some of the categories may be fuzzy. For instance, consider the example that we gave under contrasting repetition:

(9)(c) "Although his parents are Asian, his eyes are blue and not dark."

It could be argued that the tag "and not dark" isolates a salient feature of blueness and that, thereby, the example should be categorized under salient repetition. This does not necessarily indicate the arbitrary nature of the categorization, but rather that the categorization of each expression depends heavily on the context within which it is uttered. In this instance, if the previous discussion had been about the brightness of the color blue and this sentence was uttered as a living example

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[9]It would be possible to extend the definition of differentiating redundancy slightly to encapsulate also cases in which two (or more) words or expressions in conjunction single out a semantic unit, as for instance in: (i) [Again, in a line-up, confronted this time with three suspects: a short one with glasses, a short one without glasses and a tall one with glasses. You say:] "It is the short one with glasses." Although both aspects of the information provided are essential to identify the criminal, each piece of information can be thought of as redundant in a more statistical sense. We do not pursue this point and instead refer the reader to a statistics text on this matter. (Ross, 1994: 431-7, McArthur, 1996: 771-2). Redundancy in this sense has been studied extensively to enable compression of information.

how bright blue is, categorizing it as a salient repetition would be correct. The more natural classification, given that the previous discussion was about this person, would be the one that we proposed. This example goes to show that the linguistic as well as the nonlinguistic contexts are essential for identifying and classifying contextual redundancy.

3   Purpose of Redundancy

Thus far linguistic redundancy has been defined and meaningful distinctions within this concept have been pointed out. In this section, the purpose and functions of linguistic redundancy are considered. From the examples given above it is clear that the purpose of linguistic redundancy is not limited to enhancing comprehensibility, although that is remains one major aim. In total we identify six different uses of redundancy. These are:

1. enhancing comprehensibility

2. resolving ambiguity

3. isolating a feature

4. contrasting elements

5. emphasizing or intensifying

6. creating 'poetic' effect

We do not claim that this classification is comprehensive, although we do believe that these categories provide good coverage of all examples provided. It is likely that sensible subcategorizations are possible. For us it is more important to point out how the two forms of redundancy, grammatical and contextual redundancy, fall into these categories. We claim that due to its obligatory nature grammatical redundancy can only serve to enhance the comprehensibility of a statement and cannot be used for any of the five more "intentional" functions. Contextual redundancy can serve any of the six goals.

Function 1: Comprehensibility
Language from one point of view can be regarded as a communication process. It serves to communicate a message or a feeling to a (potential) audience – maybe ourselves or maybe even to no one in particular. The attempt to communicate could be thwarted due to four major kinds of imperfections:

1. imperfections of the sender (lisping, dialectal and idiolectal variation)

2. imperfections of the receptor (foreign origin)

3. imperfections of the medium (static on the phone, smudgy ink)

4. outside interruptions (noise, other people talking)

Each of these imperfections are ubiquitous and are therefore to be considered an integral part of any communication process. To counter these failures, language must have a continuously functioning back-up system in order to sustain communication. That is what redundancy does.

> Redundancy makes complexity possible... Failure, von Neumann said, must not be thought of as an aberration, but as an essential, independent part of the logic of complex systems. The more complex the system, the more likely it is that one of its parts will malfunction. Redundancy is a means of keeping the system running in the presence of malfunctioning. (Campbell, 1982: 73)

Most empirical studies on redundancy have dealt with the issue of comprehensibility. Several studies, for instance, have shown that growing up is accompanied by more extensive use of redundancy. A child increasingly uses redundancies to ensure that his or her message is understood.[10] Ways to do that can be very diverse. One, almost passive, way is by adhering to grammatical rules that apply to one's utterance. By adhering to mutually accepted rules the receptor is able to classify a statement by more that one cue, increasing thereby the chance that the utterance is understood. This is, of course, a description of what we have called grammatical redundancy. But also contextual redundancy is able to enhance understandability. Examples range from simply repeating information to building in redundant clues:

(11)(a) "Last year I visited the Dar es Salaam, the capital of Tanzania."
(11)(b) "I like that marine-colored, blue dress, that hangs over there."
(11)(c) "I can't give you money – no."

These examples include statements that clarify what was already expressed. This is closely related to, although distinct from the next function, i.e., clarifying something that was not yet completely expressed.

Function 2: Resolving ambiguity
In many official occasions precision of expression is needed. Whereas in daily life it would suffice

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[10]We refer to two studies: (1) Sonnenschein's experiment consisted of showing first graders and fifth graders six sets of four pictures. All the pictures were different, and 3 colors were used to color the boundaries of the six sets. The children had to explain to an imaginary listener which set they had chosen. It turned out that the fifth graders used more redundancy, particularly by indicating salient features (i.e., the color of the boundary). An assumption that Sonnenschein makes is that the use of redundancy is a sign of skilled communication. "With development, communicators become more skilled at taking their listener's needs into account, at least in the sense that the production of redundant messages become more and more congruent with its effects on listeners." (Sonnenschein, 1985: 499) (2) Sullivan and Levitt conducted an experiment in which they let two groups of subjects, one of 6-7 year olds, the other of 10-11 year olds, teach two children, one a native speaker of English and another with limited English proficiency, to recite the pledge of allegiance and two children's poems. When speaking to the nonnative child, the older group of children produced shorter utterances, repeated often, and spoke significantly more slowly than when speaking to the native speaker. Repetitions were generally spoken with a lower F0, and the older children also used a significantly reduced F0 range when addressing the nonnative speaker (Sullivan and Levitt, 1994).

to say "I tell the truth," in the case of a legal trial the witness is asked to swear to tell
(12)(a) "the truth, the whole truth and nothing but the truth."
Certainly the witness should tell true things ("the truth"), but he or she should also not exclude anything that is true ("the whole truth"), nor should the witness, besides true things, tell a couple of lies ("nothing but the truth"). The redundant expression is therefore only superficially redundant. Another example we have encountered before:
(12)(b) "I live in Carbondale, Pennsylvania."
Again, whether or not the tag "Pennsylvania" is superfluous, depends on the context. In the case that it is not, it distinguishes between all other possible Carbondales.

Function 3. Isolating a feature
In their speech and writing people frequently want to focus on a salient characteristic of a certain object:
(13)(a) "I love the salty sea."
The saltiness of the water does not add anything the concept of sea which is salty almost by definition. However, the phrase "salty sea" focuses the attention of the receptor on one quality, viz. saltiness, of the sea rather than others. The sea is wet, deep, wavy, but the receptor's attention is drawn to the fact that it is salty.

Function 4. Contrasting elements
Sometimes, what seems redundant actually contrasts two elements in the expression. We have already indicated how English sometimes uses additional stress to achieve this juxtaposition, whereas Spanish repeats the indirect object, as in:
(14)(a) "*I* like coffee and *you* don't."
(15)(b) "A mi me gusta el cafe y a ti no te gusta."
　　　　To me to me enjoy the coffee and to you not to you enjoy.
　　　　'I like coffee and you don't.'
This form of pronoun redundancy is quite common in Romance languages. It is not only used to contrast two opposing elements. Sometimes it is also used to emphasize or intensify a singe element.

Function 5. Emphasizing or intensifying
There seems to be some evidence that pronoun redundancy was common and accepted in seventeenth century Italian. In the grammar written by Antonio Fabro in 1626 pronoun redundancy appears alongside with the unemphasized pronouns. The major purpose of this redundant use of the pronoun was (and is) to stress the pronoun. Still today we can find such use for pronoun redundancy, although it is often considered to be subgrammatical.[11] Consider the following example:
(16)(a) "Mi ha lasciato la casa a me."
　　　　To me he has left the house to me.

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[11] "Das Gesprochene kennt bis heute beide Formen mit mehr oder weniger gleichartigem Vitalitätsniveau, die Schriftsprache zielt hingegen auf die 'natürlichere', emphatisch unbelastbarere Form ab, so dass der Gebrauch zunächst zur faktischen Norm wurde, die im späteren Ablauf die Pronomenredundanz zum schriftsprachlichen Substandard degradierte." (Radtke, 1987: 375) 'Even today the spoken language has both forms, each of which has more or less stress variants. Written language moved in the direction of the natural, emphatically neutral form, which consequently became the actual norm. The pronoun redundancy had become second rank in written language.')

'He has left the house to me.'

Pronoun redundancy is not the only kind of redundancy that intensifies or emphasizes a certain aspect of the sentence. Other examples are:

(16)(b) "The green, green grass of home."

(16)(c) "I am completely and entirely crazy about her."

(16)(d) "I had a blue, blue Christmas."

In each of these examples the redundant feature intensifies the meaning of the expression: the grass is really green at home, I am really in love with her, and my past Christmas was really sad. Although we classified these last three examples here, they could also fall into the next category.

Function 6. Creating poetic effect

The final function of creating poetic effect is, in some sense, a rest category. It encapsulates all uses of redundancy with no clear semantic purpose, but with an intention to shock, to please, to horrify, to move, etc. Examples of such expressions can often be classified as intensifying or emphasizing as well, such as for instance:

(17)(a) "The green, green grass of home."

Other groups of expressions such as warnings and insults have a tendency to be redundantly coded with the main purpose to scare and to insult respectively. Examples of these groups of expressions are abundant:

(17)(b) [a sign having the following words:] "Warning. Danger. Stay out."

(17)(c) "You are a goofy dork!"

(17)(d) "You are a stupid asshole!"

(17)(e) "Damn, what the hell are you doing!"

Although one may be in doubt about their poetic nature, in a traditional sense of the word "poetic", these redundancies do have a primary emotive charge and therefore fall under what we have termed "poetic". The example shows that this as well as any other form of redundancy can operate on the level of a paragraph, rather than on the level of a sentence. The paragraph is from Virginia Woolf, describing a vivid image of a wealthy academic institution:

> (17)(f) Every Saturday somebody must have poured gold and silver out of a leathern purse into their ancient fists, for they had their beer and skittles presumably of an evening. An unending stream of gold and silver, I thought, must have flowed into this court perpetually to keep the stones coming and the masons working; to level, to ditch, to dig, and to drain. But it was then the age of faith, and money was poured liberally to set these stones on a deep foundation, and when the stones were raised, still more money was poured in from the coffers of kings and queens and great nobles to ensure that hymns should be sung here and scholars taught. (Virginia Woolf, 1928: 11)

The author uses repetition (gold, silver, money) to sketches a lively, linguistic picture of wealthy times for this academic institution in so-called Oxbridge. This form of redundancy is poetic, in a more traditional sense of the word.

4   Conclusions

Although we have only provided anecdotal evidence, we do believe that our account of redundancy shows that this phenomena reaches the very core of language. Particularly the fact that languages are often strictly rule governed introduces by itself a whole category of linguistic redundancy – what we have called grammatical redundancy. Grammatical redundancy suggests that it may be possible to look at grammar from a functional or even social evolutionary point of view. Rather than an aiming for an economy of expression, we believe that the mental lexicon is a balance between economy and "superfluous" cues. Languages employ redundancy continuously. Besides containing grammatical redundancy languages also provide the possibility and freedom to the sender of a linguistic message to employ contextual redundancy, i.e., words or expressions that explicate, isolate, contrast, emphasize or even dramatize what was already contained in the message.

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