

THE ROLE OF SENTENCE STRESS IN THE INTERPRETATION OF COREFERENTIALITY IN ENGLISH AND POLISH

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1. English speakers, when they want to indicate that a noun refers to the same person or object as the preceding noun, have at their disposal the definite article. When a new object is introduced, the indefinite article is used. Mistakes as to the identity of referents are not frequent.

Native speakers of Polish know that mistakes as to the identity of referents are equally infrequent in their language. We seldom have doubts whether a noun refers to the same person or object or not. Otherwise, communication would be extremely difficult, if not impossible.

As I have mentioned, English uses articles, among others, as surface exponents of coreferentiality, although not all occurrences of the articles are involved in the phenomenon. For example, in

(1) **Mary does not have a car. The car is black.*

the indefinite article does not establish coreferentiality. Negation, both syntactic and lexical, has been found to disallow the indefinite article to establish coreferentiality (Karttunen 1969). This is only natural since a part of the meaning of the following definite noun is the presupposition that the referent exists, which is exactly what negation denies.

Also in such structures as

(2) *Bill is the best student.*

the definite article does not refer to any previously mentioned noun as coreferential with it.

The present paper will discuss some of the coreferential occurrences of the articles and personal pronouns in relation to the sentence stress in English and in Polish.

2.1. In 1970, Akmajian and Jackendoff noticed that the place of the sentence stress determines coreferentiality of pronouns.

For example, in

(3) *John hit Bill and then George hit him.*

a) *him* refers to *Bill* if it is unstressed,

b) *him* refers to not-*Bill* if it is stressed (Chomsky (1971:211)) says: "... to John or to someone other than John or Bill").

I first want to examine the occurrence of the articles with respect to sentence stress. Considering (4)

(4) *He was reading a book.*

with normal intonation, we find that the stress is on the indefinite noun. For a similar sentence (5)

(5) *He was reading the book.*

with the sentence stress on the definite noun (non-contrastive reading) I could find no context in which it could be used¹. The natural or normal intonation is with the stress on the verb. Thus, (5) with the sentence stress on the verb is correct, while with the stress on the noun it is not. Consider further (6) and (7):

(6) *He bought a book yesterday.*

(7) *He bought the book yesterday.*

(6) is similar to (4) in that the sentence stress falls on the indefinite noun (7) has its sentence stress not on the verb, however, but on the adverbial phrase.

Other examples of a similar type will indicate that normal intonation places the sentence stress on the indefinite noun if such is present, as in (8)

(8) *I saw a cat under the table.*

while in a sentence with a definite noun the sentence stress will fall on the element following it if such an element is present, as in (9)

(9) *I saw the cat under the table.*

or on the verb preceding the noun if nothing follows, for example (10)

(10) *I saw the cat.*

¹ At the 4th international conference In English-Polish contrastive linguistics at Ustronie (Dec. 13-15, 1973), prof. Werner Winter called my attention to the fact that the stressed definite noun in (5) would mean the Bible. This is in perfect agreement with my discussion of nouns marked 'unique'.

All this concerns nouns in the object position. With a definite noun in the initial, subject position, as in (11)

noun in the initial, subject position, as in (11)

(11) *The man was coming.*

the sentence stress falls on the verb.

Sentences with an indefinite noun in the subject position are perhaps less frequent but (12)

(12) *A man was coming.*

is a correct sequence to something like (13):

(13) *I heard a noise and turned round.*

Notice that in (12) the sentence stress is on the indefinite noun and in the initial position. Notice also that (12) with the sentence stress on *coming* does not make sense.

Conclusions of this extremely brief account are as follows:

- I) If an indefinite noun is present, it bears the sentence stress in normal intonation (examples 4, 6, 12), no matter what its function and position is in the sentence.
- II) In the presence of a definite noun the sentence stress falls on the final element if nothing follows the noun (examples 8, 9, 11), or on the preceding element if nothing follows, usually a verb (example 10), but also a preposition (The cat was *under* the table).
- III) is an interesting, I think, observation concerning adverbials and noun marked with a feature 'unique'.

Notice, first, that many adverbials have a definite noun, for example (9) or (14)

(14) *I am going to the cinema.*

and none the less it normally bears the sentence stress, conflicting with conclusion II above. Notice, however, that if we add an opening sentence (15)

(15) *There was a big round table in my room.*

to (16)

(16) *The cat was sleeping under the table.*

the sentence stress in (16) will move on to the preceding verb, thus satisfying conclusion II.

Similarly nouns marked 'unique' as in (17) or (18)

- (17) *I looked at the sun.*
 (18) *Bill is the best student.*

have the stress on the definite noun. Again, however, if we add an opening sentence (19)

- (19) *He asked me to look at the sun.*

to (17), the sentence stress will shift to the verb

- (20) *I looked at the sun (but saw nothing).*

It would seem, then, that conclusion II refers to textually determined coreferentiality, whereas examples (16) and (17) are cases of situational anaphora. Stockwell, Schachter and Partee (1968) use the terms 'linguistic' and 'non-linguistic' anaphora without, however, any further consequences. The division finds material justification in the examples discussed above. It seems, then, that a distinction between textual (linguistic) and situational (non-linguistic) anaphora is necessary. Furthermore, we can see that situationally coreferential nouns behave as new information of the discourse (focus-sentence stress association) without the necessity for the referent itself to be new to the speaker and to the listener, as in the case of *the sun*, for example.

All textually introduced nouns behave in the way described in conclusion II.

The examples discussed so far do not exhaust the possibilities of the sentence stress placement. Let us, now, consider some of the above sentences with a different place of the sentence stress. For example, (4) may have the stress on any element, i.e.,

- (4a) *He was reading a book.*
 (4b) *He was reading a book.*
 (4c) *He was reading a book.*

However, it is clear that all these a) have emphatic stress, b) express contrast. We may also have emphatic stress on *book*, as in (4d)

- (4d) *He was reading a book.*

The same is true for (5):

- (5a) *He was reading the book.*
 (5b) *He was reading the book.*
 (5c) *He was reading the book.*
 (5d) *He was reading the book.*

In all examples of (4) and (5) the intonation pattern changes, too (higher pitch). Nothing, however, changes in coreferentiality if emphatic stress is

used. It follows that normal stress and emphatic stress are two different kinds of stress and must be introduced separately.

2.2. Let us see, now, what the role of the sentence stress is in Polish. In one of my earlier papers (Szwedek 1974) on definiteness and indefiniteness of nouns I indicated that word order in Polish is one of the ways in which coreferentiality is expressed. Thus, for example, of the two sequences (21)–(22) and (21)–(23)

- (21) *Widziałem na ulicy kobietę.*
(I saw on street woman (Acc))
 (22) *Kobietę bił mężczyzna.*
(Woman (Acc) was hitting man (Nom))
 (23) *Mężczyzna bił kobietę.*
(Man (Nom) was hitting woman (Acc))]

only the former constitutes a discourse. (23) with the same intonation as (22), i.e., with the sentence stress on the final noun can not be a sequence of (21). For (23) to become a possible sequence sentence of (21), a shift of the sentence stress to the initial position is necessary, as in (24)

- (24) *Mężczyzna bił kobietę.*
(Man (Nom) was hitting woman (Acc))

But then the meaning of the stressed element is contrastive (emphatic stress), the unstressed element retaining its coreferential interpretation.

Consider, next, (22) and (23) as sequences of (25)

- (25) *Widziałem na ulicy mężczyznę.*
(I saw on street man (Acc))

Only (23) may form a discourse with (25). If we want (22) to follow (25) we have to move the stress to the noun in the initial position. Conclusions of this sketchy presentation are as follows:

- I. The normal intonation seems to be the one with the sentence stress on the final element.
- II. If a noncoreferential noun is present, it bears the sentence stress in normal intonation.
- III. Hence, it is the word order that changes—moving the indefinite noun to the final position — rather than the place of the sentence stress. It must also be added that such changes are independent of the syntactic functions the nouns have in the sentence.

As regards adverbial phrases in Polish, as in

(26) *Kot spał pod stołem.*
(Cat (Nom) was sleeping under table)

(27) *Idę do kina.*
(I am going to cinema)

we find that, as in English, they are stressed. If we want to make the noun coreferential we must, again as in English, remove the sentence stress from it as in the following sequence:

(28) *W domu był duży okrągły stół.*
(In house was big round table)

(26) *Kot spał pod stołem.*

(26) as a sequence sentence is much improved if we add a demonstrative pronoun, as in, (30)

(30) *Kot spał pod tym stołem.*
(Cat (Nom) was sleeping under this table)

The explanation of this improvement is not difficult, it seems. Sentence final position is associated with indefiniteness so strongly that even with the shift of the stress the indefinite meaning does not disappear completely. Only when we add a demonstrative pronoun are the doubts removed. This, I think, is an important point in demonstrating the significance of word order in Polish² in the interpretation of coreferentiality of nouns and the changing status of demonstrative pronouns.

Conclusions I-III above gain in clarity if one of the nouns in, for example, (22) and (23) is replaced by a pronoun, as in (31)

(31) *Mężczyzna bił ją.*
(Man (Nom) was hitting her)

We can not have the sentence stress on the pronoun, in normal intonation. Thus (32)

(32) *Mężczyzna bił ją.*
(Man (Nom) was hitting her)

is incorrect.

We have, then, two possibilities:

a) with *mężczyzna* coreferential and thus unstressed. Then the verb is naturally stressed, as in (33)

² The problems seem to be similar in other languages. For example, prof. K. Sajavaara and W. Bantaš confirmed it for Finnish and Roumanian respectively.

(33) *Mężczyzna bił ją.* (or *Mężczyzna ją bił.*)
(Man was hitting her, or Man her was hitting)

b) with *mężczyzna* noncoreferential and stressed, as in (34)

(34) *Bił ją mężczyzna.*
(Was hitting her man (Nom))

If we move the stressed item in (33) and (34) to the initial position, we will get an emphatic interpretation.

3.1. Example (3) introduced the discussion relating to the significance of the sentence stress in the interpretation of coreferentiality. Let us, now, give more attention to this problem, with regard to pronouns.

It is obvious that personal pronouns always have a coreferential interpretation. Thus they should not bear the sentence stress in normal intonation. Since all personal pronouns are coreferential, the interesting question is not whether a pronoun is coreferential or not but what its antecedent is. Let me, first, return to example (3) with a slight modification which will make it a bit more difficult³:

(35) *John hit Bill and then he hit him.*

Assume, first, that *he* and *him* are interpreted as coreferential with *John* and *Bill* respectively, and thus do not have the sentence stress. The sentence stress would then have to be on *hit* identical to the verb in the first clause. Therefore, the second clause, being identical to the first, has no logical basis for existence. To receive a correct sentence we must change the verb, too. For example

(36) *John hit Bill and then he kicked him.*

with *kicked* as the new and stressed information. Notice also that in this case both the pronouns are unstressed and receive a coreferential interpretation.

If (35) cannot have the sentence stress on *hit*, then two other possibilities are left: with the sentence stress on *he*, as in (37)

(37) *John hit Bill and then he hit him.*

a) *him* (unstressed) is coreferential to *Bill*,

b) *he* is noncoreferential to *John* (*Bill* is excluded from considerations

³ Other examples like the one given by Akmajian and Jackendoff (1970) — *After he woke up John went to town* — have additionally different restrictions on the interpretation of coreferentiality. I agree with Lakoff (1968) here that pronominalization is a complex phenomenon involving syntactic as well as suprasegmental facts.

because his coreferentiality has already been determined), i.e., it denies a coreferential interpretation within the sentence. Thus it seems necessary to distinguish extra- and intrasentential coreferentiality.

With the sentence stress on *him*, as in (38)

(38) *John hit Bill and then he hit him.*

a) *he* is coreferential with *John*,

b) *him* is noncoreferential with *Bill* (*John* being excluded on the same grounds as *Bill* in b) above).

Notice, first, that the unstressed pronoun has a coreferential interpretation, and the stressed pronoun a noncoreferential interpretation, regardless of the syntactic function it has in the sentence. Notice also that the sentence stress on any of the pronouns is of the emphatic type. The explanation seems to be easy. In normal intonation the unstressed pronoun receives a coreferential interpretation. Therefore, what the sentence stress does in (37) and (38) is to deny the coreferential interpretation of the pronoun with the same-function noun in the preceding clause. That is, in (37) it means: *specifically not-John*, and in (38): *specifically not-Bill*. That *John* is excluded as a candidate-referent of *him* in (38) is due to the fact that *he* is not stressed and must be interpreted as coreferential to *John*. However, if we remove the possibility of interpreting *he* as coreferential with *John*, as in (39)

(39) *John hit Bill and then George hit him.*

him will include *John*. But it will still have the meaning: *not-Bill*.

3.2. In this section I want to examine a Polish sentence (40)

(40) *Janek uderzył Tomka a potem on go uderzył.*
(*John hit Tom and then he him hit*)

similar to the English example (35). The sentence stress on the verb is excluded for the same reasons as have been given for (35). With the sentence stress on the subject pronoun *on*, as in (41)

(41) *Janek uderzył Tomka a potem on go uderzył.*
(*John hit Tom and then he hit him*)

on is noncoreferential with *Tomek*.

If we stress the object pronoun changing the unstressed form to the stressed *jego*, we will get (42)

(42) *Janek uderzył Tomka a potem on jego uderzył.*
or (*John hit Tom and then he him hit*)

(43)

(43) *Janek uderzył Tomka a potem on uderzył jego.*
(*John hit Tom and then he hit him*)

Jego being under the sentence stress is noncoreferential with *Tomek*. However, contrary to English, *on*, now is not necessarily coreferential to *Janek*. Only when we omit the subject pronoun, as in (44)

(44) *Janek uderzył Tomka a potem uderzył jego.*
(*John hit Tom and then hit him*)

is the understood subject of the second clause coreferential with *Janek*. It does not follow, however, that we may omit the object pronoun when it is unstressed⁴, as in (45)

(45) *Janek uderzył Tomka a potem on uderzył.*

There are some interesting restrictions here:

a) we delete only the subject pronoun, but never the object pronoun alone. If the object pronoun is to be deleted, the subject pronoun must be removed, too. Compare (46), (47) and (48)

(46) *Janek uderzył Tomka a potem on kopnął.*
(*John hit Tom and then he kicked*)

(47) *Janek uderzył Tomka a potem go kopnął.*
(*John hit Tom and then him kicked*)

(48) *Janek uderzył Tomka a potem kopnął.*
(*John hit Tom and then kicked*)

b) if both are to be deleted, the stress in the first clause must fall on the verb, too (naturally, the stress falls on the verb in the second clause because there is nothing else left).

In English, subject pronoun deletion is impossible. We must delete both the subject and the verb, as in (49)

(49) *John hit Bill and then him.*

4. I think I have shown that the sentence stress plays the same role in English and in Polish with respect to coreferentiality. One of the specific conclusions that I want to repeat and stress is that word order in Polish is not free as has been claimed so far, but it is closely connected with the sentence stress and coreferential relations, and thus strictly determined. In English, with different word order restrictions, it is the sentence stress that moves.

It follows from the presentation that the nature of the normal stress and contrastive stress is different in that the normal stress is predictable, while contrastive stress is not. The failure to distinguish between the two stresses

⁴ Similar facts have been found in Serbo-Croatian, as was told by prof. Wayles Browne.

accounts for the difficulties of, for example, Jackendoff (1972), in incorporating phonological contrast (REception/CONception) into his stress rules. It also makes Bolinger (1972) criticize (correctly in part) Bresnan (1971) in his "Accent is predictable (if you're a mind-reader)".

The general conclusions that I want to emphasize are as follows:

- A) it is necessary to distinguish between normal and contrastive stress,
- B) it is necessary to distinguish between textual and situational coreferentiality,
- C) textual coreferentiality must be subdivided into intrasentential and extrasentential.

The interpretation of coreferentiality of the three types (intrasentential, extrasentential, and situational) depends crucially on the type and place of the sentence stress.

The way in which the relations discussed above could be incorporated in the grammar would depend on the theoretical framework (roughly generative semantics or interpretive semantics). It is clear, however, that no sentence grammar can now account for the phenomena requiring reference outside the sentence, for example extrasentential and situational coreferentiality. These will require a grammar of text. It will be fascinating to see how text parameters such as, for example, coreferentiality, interact with typically sentential elements like, for example, sentence stress, focus and structure.

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