

Experiments on the Accentuation of Focus Operators

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We describe two experiments on the context-driven accentuation of the focus adverbs “nur” (“only”), “meistens” (“mostly”) and “selten” (“seldom”). The results of the experiments can be taken as evidence for the hypothesis of optimal accentuation according to which only words that are crucial for understanding an utterance are to be accentuated (cf. [Schmitz 2005]).

1 Introduction

The following, well-known examples show that the usability conditions of sentences can be influenced by accentuation (the words in capital letters are to be accentuated):

- (1) Whom did John introduce to Sue? — John introduced BILL to Sue.
- (2) To whom did John introduce Bill? — John introduced Bill to SUE.

With stress on “Bill” (example 1), the sentence “John only introduced Bill to Sue” can be uttered as an answer to the first question, whom John introduced to Sue, but it cannot be felicitously uttered as an answer to the second question, to whom John introduced Bill. With stress on “Sue” it is the other way around: The sentence can serve as an answer to the second question (of example 2) but not to the first question (of example 1).

Literally understood, the answer sentences have the same meaning. However, if they are interpreted as exhaustive answers, they are not equivalent: In example (1), the exhaustive answer is that John introduced only Bill to Sue; in example (2), the exhaustive answer is that John introduced Bill only to Sue. The different exhaustive interpretations are due to the different questions under discussion and – consequently – the different stress patterns.

The exhaustive interpretations demand free semantic enrichment: In example (1), the exhaustivity-operator *exh* is to be applied to the semantic representation of “Bill” – which yields a representation in the sense of

“only Bill” –, while in example (2) *exh* is to be applied to the semantic representation of “Sue” – which yields a representation in the sense of “only Sue”.

If we add the adverb “only”, the exhaustive interpretations become literal interpretations:

- (3) Whom did John introduce to Sue? — John only introduced BILL to Sue.
- (4) To whom did John introduce Bill? — John only introduced Bill to SUE.

The answer sentences of the examples (3) and (4) literally mean different exhaustive answers to the respective questions under discussion. Since on the surface level the sentences are identical except with respect to their stress patterns, the semantic difference seems to be connected to the different stress patterns. It is an effect of accentuation.

Semantic effects of accentuation are usually explained by focus theories: In example (3), the stress on “Bill” marks “Bill” as a focus which is associated with the focus adverb “only”. In example (4), the stress on “Sue” marks “Sue” as the focus associated with “only”. Associations of “only” with different focusses yield different semantic meanings. Ergo: The different stress patterns of (3) and (4) give rise to different interpretations.

A theory of optimal accentuation (cf. [Schmitz 2005]) diverges from the focus-theoretical explanation: Stress patterns serve the purely pragmatic purpose of making an utterance well understandable. In speech communication, it is probable that a recipient does not recognize all the words of an utterance. Nevertheless, the recipient can interpret the entire utterance if he recognizes at least those words which are crucial for understanding. Accentuating a word raises the probability of its being recognized; the fewer words of an utterance are accentuated, the higher is the probability that all accentuated words are properly recognized. Therefore, a cooperative speaker – a speaker who wants to be understood – optimally accentuates a minimal set of words which are crucial for interpreting his utterance.

It depends on the dialogue context which words of an utterance are crucial for interpretation and therefore have to be accentuated. Under the assumption that a given speaker accentuates optimally, the speaker presupposes constraints on the dialogue context by accentuation: The context of his utterance must be so that the utterance’s stress pattern is optimal regarding this context. If the truth conditions of a sentence depend on its utterance context, the presupposition of context constraints can influence the

truth conditions. Semantic effects can therefore appear as epi-phenomena of a purely pragmatically motivated accentuation.

(5) Whom did John introduce to Sue? — *noise* BILL *noise*

(6) John introduced BILL to Sue.

In example (5), it is not the entire answer sentence but only the name “Bill” that is recognized. If the recipient knows the question under discussion, he can enrich the name to the full proposition that John introduced (only) Bill to Sue. He ‘reconstructs’ a proper answer.

In example (6), the answer sentence is optimally accentuated only if it is under discussion whom John introduced to Sue. We do not know in advance which question is under discussion. However, by presupposing that sentence (6) is optimally accentuated, we can infer the question from the stress pattern. With regard to this question we can semantically enrich sentence (6) and interpret it as the exhaustive answer that John introduced only Bill to Sue.

In example (5), the recipient does not recognize the focus adverb “only”. Nevertheless, he can ‘reconstruct’ an exhaustive answer by applying the *exh*-operator. The application of the *exh*-operator is not obligatory. The recipient will only apply the operator if he assumes that this will lead him to the ‘right’ interpretation. That is, he will only apply *exh* if he assumes that the speaker wants to give an exhaustive answer. If the recipient believes that the speaker does not want to give an exhaustive answer – e.g. because he thinks that the speaker does not know the exhaustive answer –, he will not apply the *exh*-operator. If the speaker must assume that the recipient does not expect an exhaustive answer, he must explicitly mark his answer as exhaustive by the use of “only”. He has to make the recipient recognize “only”, and therefore he has to accentuate it:

(7) Whom did John introduce to Sue? — John ONLY introduced BILL to Sue.

In an utterance context, the focus adverb “only” – like any other word – has to be accentuated if it is crucial for understanding the entire utterance. A speaker does not have to accentuate “only” if he can assume that the recipient compensates for the non-recognition by freely applying the *exh*-operator. We hypothesise that there is a positive correlation between the accentuation of “only” in answers and expectations regarding the exhaustivity of the respective answers. In section 2, we confirm this hypothesis by experimentally investigating the accentuation of the German focus adverb “nur”. We have to perform the experiment in German, because we

only have German speaking test persons available. “Nur” is the German translation of “only”; we presuppose that “nur” behaves analogously to “only”.

A speaker has to accentuate a focus adverb if the adverb is crucial for understanding his utterance. The speaker need not accentuate the adverb if he can expect that the recipient will compensate for the non-recognition of the adverb. The recipient can only compensate for the non-recognition if he can perform an operation of semantic enrichment by which he freely ‘adds’ the semantic value of the focus adverb to his interpretation. We assume that such operations of semantic enrichment do not exist for all focus adverbs. We therefore expect that the general tendency to estimate a focus adverb as crucial for understanding and consequently to accentuate it is not the same for all focus adverbs. In section 3, we confirm this hypothesis by comparing accentuation preferences concerning the German focus adverbs “meistens” (“mostly”) and “selten” (“seldom”).

2 “Nur” (only)

Let two fields – a left field and a right field – with geometric objects be given. The questioner of example (8) knows which objects exist, but he¹ does not know in which fields the objects are:

(8) What’s in the left field? — Only the square is in the left field.

In example (8), the question is answered by the utterance of a declarative sentence in which the focus adverb “only” marks that the sentence is to be interpreted as an exhaustive answer: The square is the only object in the left field; all other objects are in the right field.

If the responder can assume that the questioner will interpret the answer as an exhaustive answer in any case, she² needs not accentuate the focus adverb because she can expect that the questioner grasps the exhaustive interpretation whether or not he recognizes “only”:

- If the questioner recognizes “only”, he grasps the exhaustive interpretation as a literal interpretation.

¹ In all our examples, the questioner is assumed to be male and the responder is assumed to be female.

² See footnote 1.

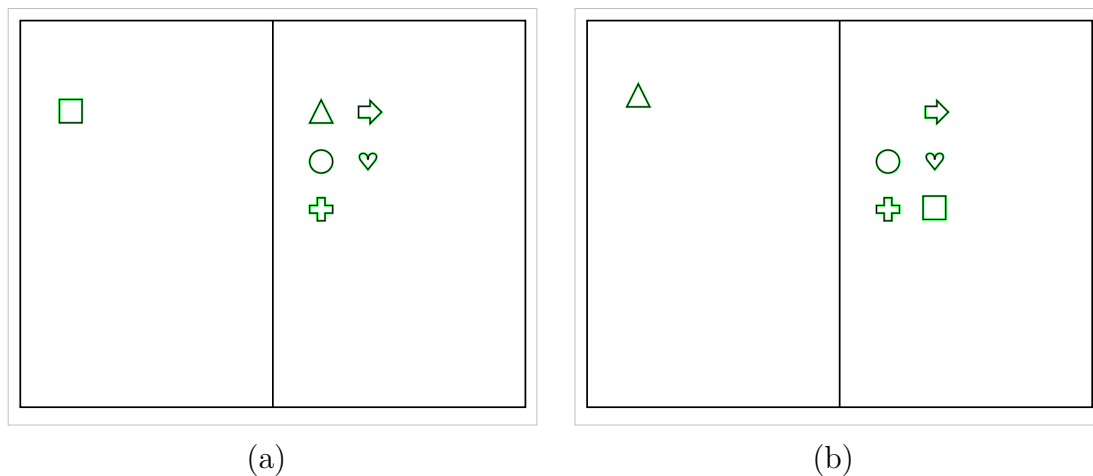


Figure 1: Reference worlds for the “nur”-experiment

- If the questioner does not recognize “only”, he grasps the exhaustive interpretation by free semantic enrichment, i.e. by the application of the *exh*-operator.

The situation changes if the responder must suppose that the questioner has conflicting presumptions regarding the distribution of the objects. In this case, she cannot expect that the questioner independently interprets the answer as an exhaustive answer which – according to his presumptions – is probably false. Explicitly marking the answer’s exhaustivity by the use of “only” is necessary for meeting the presumptions of the questioner effectively. In order to assure that she is correctly understood, the responder has to make the questioner recognize the word “only”. She therefore has to accentuate “only”.

We hypothesise that there is a positive correlation between the accentuation of the focus adverb “only” and expectations of the questioner regarding the truth of the exhaustive answer (more precisely: assumptions of the respondent regarding the expectations of the questioner). The following experiment serves the evaluation of our hypothesis. Since we only have speakers of German as test persons (tps) available, we have to perform the experiment in German, which means that we have to investigate the accentuation of “nur” instead of its English counterpart “only”. However, we assume that “nur” behaves analogous to “only” and we assume we would get similar results if we were to perform our experiment in English with English tps.

The experiment has two parts:

1. 29 tps – among them 14 native speakers (ns) and 15 non-native speakers (nns) of German – are confronted with a dialogue situation and two recordings of the following question-answer dialogue (9).³

(9) (a) Was ist im linken Feld? (What’s in the left field?) — Nur das QUADRAT ist im linken Feld. (Only the SQUARE is in the left field.)

(b) Was ist im linken Feld? (What’s in the left field?) — NUR das QUADRAT ist im linken Feld. (ONLY the SQUARE is in the left field.)

The words in capital letters are accentuated. The two recordings differ only in the accentuation of the focus adverb “nur”: In the first recording “nur” does not bear an accent, while in the second recording it does. Before the two recordings are played, the dialogue situation is described as follows: The left picture of figure (1) is given. There are six different objects which are distributed on two fields. All objects except the square are in the right field, the square is in the left field. The questioner of the test dialogue has no presumptions regarding the distribution of the objects. The respondent knows the distribution; she shall inform the questioner adequately.

The tps are asked to choose the recording with the ‘better’ accentuation pattern. Our experiment is a forced-choice experiment: The tps must decide for one of the recordings, i.e. they must decide for or against the accentuation of the focus adverb “nur”.

Result: 55.2% of the tps prefer the answer without an accent on “nur”; 44.8% of the tps prefer the other answer with an accent on “nur”. For the entire group of tps we cannot find a clear preference for or against the accentuation of the focus adverb.

2. We repeat the experiment with the same tps, with an insignificantly changed dialogue and with a significantly changed dialogue situation: The right picture of figure (1) is given. Again, there are six objects which are distributed on two fields. All objects except the triangle are

³ The tps are undergraduate students of an introductory course at the former Institute for Communication Research and Phonetics, University of Bonn. The simple reason for the suboptimal number of test persons is that exactly 29 students (unfortunately not 31 students) attend the course.

		answer with an accent on “nur”		answer without an accent on “nur”	
exp. 1	all tps	16	(55.2%)	13	(44.8%)
	ns	5	(35.7%)	9	(64.3%)
	nns	8	(53.3%)	7	(46.7%)
exp. 2	all tps	21	(72.4%)	8	(27.6%)
	ns	14	(100%)	0	(0%)
	nns	7	(46.7%)	8	(53.3%)

Table 1: Results: the accentuation of “nur”

in the right field, the triangle is in the left field. This time, we assume that the questioner has the strong expectation that the objects are more or less evenly distributed on the two fields, i.e. that there are 2-4 objects in each field. The respondent knows the distribution; she shall inform the questioner adequately.

- (10) (a) Was ist im linken Feld? (What’s in the left field?) — Nur das DREIECK ist im linken Feld. (Only the TRIANGLE is in the left field.)
- (b) Was ist im linken Feld? (What’s in the left field?) — NUR das DREIECK ist im linken Feld. (ONLY the TRIANGLE is in the left field.)

We play the recordings of dialogue (10). The tps are asked to choose the recording with the ‘better’ accentuation pattern. Again, the experiment is a force-choice experiment: The tps must decide for one of the recordings, i.e. they must decide for or against the accentuation of “nur”.

Result: 27.6% of the tps prefer the answer without an accent on “nur”, 72.4% of the tps prefer the other answer with an accent on “nur”. For the entire group of tps we find a preference for the accentuation of the focus adverb.

The results of both parts of the experiment are given in table (1). The tps prefer an accent on “nur” significantly more often when the exhaustivity of the answer contradicts the presumptions of the questioner (second part

of the experiment). The t-test for comparing the null hypothesis (there is no correlation between preferences on the accentuation of “nur” and the presumptions of the recipient) with the one-sided alternative hypothesis (which is our hypothesis that the accentuation of “nur” is preferred more often when the exhaustivity of the answer contradicts the recipient’s expectations) yields a p-value of 0.0305.⁴ Therefore, the results of our experiment corroborate our hypothesis: The adverb “nur” need not be accentuated if it is pragmatically redundant. “Nur” is pragmatically redundant if the respondent can assume that the questioner expects an exhaustive answer anyway and that he will understand the answer even when he does not recognize “nur”.

3 “Meistens” (mostly) and “Selten” (seldom)

The tendency to treat a focus adverb as pragmatically redundant need not be the same for all focus adverbs. Let us compare the adverbs “mostly” and “seldom”.⁵

(11) Where do mammals live?

1. Mammals mostly live on land.
2. Mammals seldom live in the water.

The interrogative sentence from example (11) can be interpreted in two ways: It can be weakly interpreted as the question where mammals in general (i.e. mostly) live. Alternatively, it can be strictly interpreted as the question for all the places where at least some kind of mammals lives. The adverb “mostly” in the first answer of example (11) is pragmatically redundant if the interrogative sentence is understood in the weaker sense. In this case, “mostly” need not be recognized for the proper understanding of the answer, and it need not be accentuated. Contrary, if the interrogative sentence is understood in the strict sense, then “mostly” is not pragmatically redundant. For grasping the correct interpretation of the answer, the questioner has to recognize the adverb. Therefore, the respondent has

⁴ The p-value for the native speakers of German is 0.02037, the p-value for the non-native speakers of German is 0.5. I.e.: The result of our experiment is significant only for the native speakers. However, the numbers of native and non-native tps alone are so small (14 tps, 15 tps) that a low p-value is very difficult to reach.

⁵ Cf. e.g. [Rooth 1996] for the status of “mostly” as a focus adverb.

to accentuate it. The adverb “seldom” differs from “mostly” insofar as “seldom” is critical for understanding the second answer of example (11) on both interpretations of the interrogative sentence. That is, “seldom” is neither pragmatically redundant if the interrogative sentence is interpreted in the weaker sense nor if it is interpreted in the strict sense. We assume that “seldom” has to be accentuated in both cases.

- (12) 1. Where do mammals mostly live? — Mammals mostly live on land.
 2. Where do mammals seldom live? — Mammals seldom live in the water.

In the dialogues of example (12), the adverbs “mostly” and “seldom” already occur in the interrogative sentences, so that their occurrences in the answers are pragmatically redundant. They need not be accentuated.

We state the following hypotheses: Firstly, there should be a clear tendency to prefer an accent on “seldom” in the context of example (11) and not to prefer an accent on “seldom” in the context of example (12). We expect a clear correlation of the dialogue contexts and the preferences regarding the accentuation of “seldom”. Secondly, we expect that the tendency to prefer an accent on “mostly” in the context of example (11) is much weaker than the tendency to prefer an accent on “seldom” in the same context. The correlation of the dialogue contexts and the preferences regarding the accentuation should be weaker for “mostly” than for “seldom”. Thirdly, we do not expect different preferences regarding the accentuation of “mostly” and “seldom” in the contexts of example (12).

The following experiment serves the evaluation of our hypotheses. Since we have to perform the experiment with speakers of German, we investigate the accentuation of “meistens” and “selten” instead of their English counterparts. We assume that we would obtain similar results if we were to perform our experiment in English with English tps.

The experimental setup is analogous to that of the “nur”-experiment described in section 2: First, the tps are confronted with dialogue situations, then recordings of question-answer dialogues are played. The tps are asked to choose the recording with the ‘better’ accentuation pattern. The experiment is a forced-choice experiment: The tps must decide for one of the recordings, i.e. they must decide for an accentuation pattern.

We construct two marginally different dialogue situations:

- The left picture of figure (2) is given. There are nine rectangles with three fields each. For each rectangle, there is a red square in one of

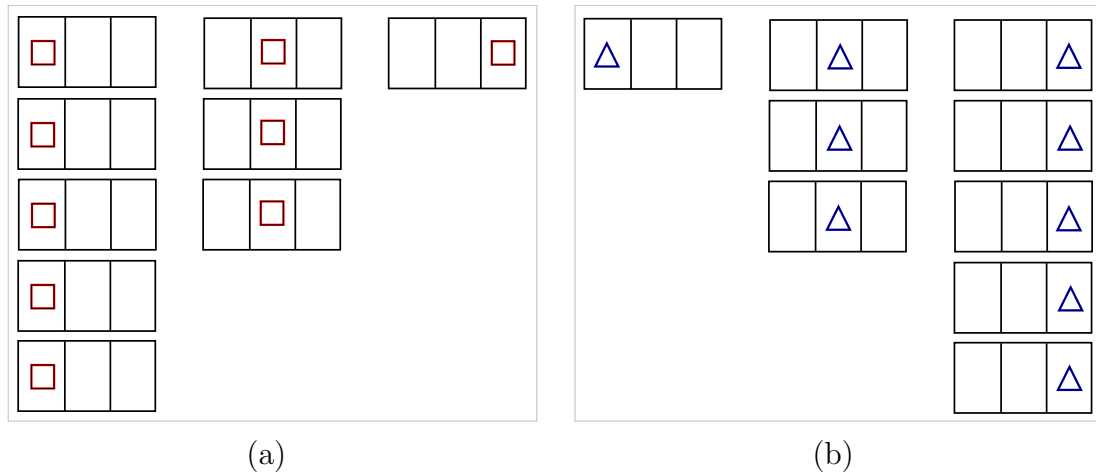


Figure 2: Reference worlds for the “meistens” / “selten”-experiment

the fields. In five cases the square is in the left field, in three cases it is in the middle field, in one case it is in the right field.

- The right picture of figure (2) is given. Again, there are nine rectangles with three fields each. For each rectangle, there is a triangle in one of the fields. In one case the triangle is in the left field, in three cases it is in the middle field, in five cases it is in the right field.

The questioner of the dialogues that are played to the tps has no presumptions regarding the answers to his questions. The respondent has the knowledge to answer the questions; she shall inform the questioner adequately.

The experiment is performed in four parts with four different groups of tps:⁶

1. The first part of the experiment is performed with 40 tps, among them 31 native speakers of German (ns) and 9 non-native speakers of German (nns). We start by presenting the left picture of figure (2) as a reference world for dialogue (13). Then, we play the two recordings of the dialogue. In the answers, the capitalized words are accentuated.⁷ The tps choose the ‘better’ answer.

⁶ All tps are undergraduate students at the former Institute for Communication Research and Phonetics, University of Bonn. Each tp took part in only one of the (sub-)experiments.

- (13) (a) In welchem Feld ist das Quadrat? (In which field is the square?)
 — Das Quadrat ist meistens im LINKEN Feld. (Mostly, the square is in the LEFT field.)
- (b) In welchem Feld ist das Quadrat? (In which field is the square?)
 — Das Quadrat ist MEISTENS im LINKEN Feld. (MOSTLY, the square is in the LEFT field.)

Next, we present the right picture of figure (2) as a reference world for dialogue (14). The two recordings of the dialogue are played. Again, the tps choose the ‘better’ answer.

- (14) (a) In welchem Feld ist das Dreieck? (In which field is the triangle?)
 — Das Dreieck ist selten im LINKEN Feld. (Seldom, the triangle is in the LEFT field.)
- (b) In welchem Feld ist das Dreieck? (In which field is the triangle?)
 — Das Dreieck ist SELTEN im LINKEN Feld. (SELDOM, the triangle is in the LEFT field.)

2. We repeat the first part of the experiment with 22 new tps (18 ns, 2 nns). However, in this part of the experiment we play the recordings in reverse order: For each dialogue, we first play the recording with an accent on the focus adverb (13b, 14b) and then we play the recording without an accent on the focus adverb (13a, 14a).
3. The third part of the experiment is performed with 30 tps (20 ns, 10 nns). For this part of the experiment we change the dialogues, so that the focus adverbs “meistens” and “selten” already occur in the interrogative sentences. We present the left picture of figure (2) as a reference world for the dialogue (15) and the right picture of figure (2) as a reference world for the dialogue (16).

- (15) (a) In welchem Feld ist das Quadrat meistens? (In which field is the square mostly?) — Das Quadrat ist meistens im LINKEN Feld. (Mostly, the square is in the LEFT field.)
- (b) In welchem Feld ist das Quadrat meistens? (In which field is the square mostly?) — Das Quadrat ist MEISTENS im LINKEN Feld. (MOSTLY, the square is in the LEFT field.)
- (16) (a) In welchem Feld ist das Dreieck selten? (In which field is the triangle seldom?) — Das Dreieck ist selten im LINKEN Feld. (Seldom, the triangle is in the LEFT field.)

⁷ The interrogative sentences are neutrally accentuated.

exp.	tps	answer with “meistens” (<i>m</i>)				answer with “selten” (<i>s</i>)			
		accent on <i>m</i>		no accent on <i>m</i>		accent on <i>s</i>		no accent on <i>s</i>	
exp. 1	all	24	(60%)	16	(40%)	31	(77.5%)	9	(22.5%)
	ns	18	(58.1%)	13	(41.9%)	23	(74.2%)	8	(25.8%)
	nns	6	(66.7%)	3	(33.3%)	8	(88.9%)	1	(11.1%)
exp. 2	all	9	(40.9%)	13	(59.1%)	14	(63.6%)	8	(36.4%)
	ns	6	(33.3%)	12	(66.7%)	12	(66.7%)	6	(33.3%)
	nns	3	(75%)	1	(25%)	2	(50%)	2	(50%)
1 & 2	all	33	(53.2%)	29	(46.8%)	45	(72.6%)	17	(27.4%)
	ns	24	(49%)	25	(51%)	35	(71.4%)	14	(28.6%)
	nns	9	(69.2%)	4	(30.8%)	10	(76.9%)	3	(23.1%)
exp. 3	all	13	(43.3%)	17	(56.7%)	13	(43.3%)	17	(56.7%)
	ns	9	(45%)	11	(55%)	9	(45%)	11	(55%)
	nns	4	(40%)	6	(60%)	4	(40%)	6	(60%)
exp. 4	all	6	(37.5%)	10	(62.5%)	5	(31.25%)	11	(68.75%)
	ns	4	(36.4%)	7	(63.6%)	4	(36.4%)	7	(63.6%)
	nns	2	(40%)	3	(60%)	1	(20%)	4	(80%)
3 & 4	all	19	(41.3%)	27	(58.7%)	18	(39.1%)	28	(60.9%)
	ns	13	(41.9%)	18	(58.1%)	13	(41.9%)	18	(58.1%)
	nns	6	(40%)	9	(60%)	5	(33.3%)	10	(66.7%)

Table 2: Results: the accentuation of “meistens” and “selten”

(b) In welchem Feld ist das Dreieck selten? (In which field is the triangle seldom?) — Das Dreieck ist SELTEN im LINKEN Feld. (SELDOM, the triangle is in the LEFT field.)

- We repeat the third part of the experiment with 16 tps (11 ns, 5 nns) but we play the recordings in reverse order: For each dialogue, we first play the recording with an accent on the focus adverb (15b, 16b) and then we play the recording without an accent on the focus adverb (15a, 16a).

The results of the entire experiment are given in table (2). The tps show the general tendency to prefer the answer which is played second: The data are highly significant regarding a correlation between the order in which the

dialogue recordings are played and the tps' judgements (p-value: 0.005203, two-sided t-test). To compensate for this effect, we repeat the first and the third part of the experiment by playing the dialogue recordings in reverse order (second and fourth part of the experiment). We do not have the same number of tps available for each part of the experiment. However, as the following evaluation shows, this imbalance does not impair the results:

1. The tps have the clear tendency to prefer an accent on "selten", if "selten" does not already occur in the interrogative sentence. The data are highly significant: The t-test for comparing the null hypothesis (there is no correlation of the preferences concerning the accentuation of "selten" and the occurrence of "selten" in the interrogative sentence) with our one-sided alternative hypothesis (the tendency to prefer an accent on "selten" is stronger if "selten" does not occur in the interrogative sentence) yields a p-value of 0.0004785.⁸

We have expected this tendency. If the adverb "selten" already occurs in the interrogative sentence, it is pragmatically redundant in the answer and need not be accentuated. Contrary, if "selten" does not occur in the interrogative sentence, the adverb is not pragmatically redundant in the answer and has to be accentuated.

2. The data confirm our hypothesis that the tendency to prefer an accent on "selten" is stronger than the tendency to prefer an accent on "meistens" if these adverbs do not already occur in the interrogative sentence (parts 1 and 2 of the experiment): The t-test for comparing our one-sided hypothesis with the null hypothesis (there is no correlation between the choice of the focus adverb and the tps' judgements) yields a p-value of 0.02016.⁹

⁸ The data are highly significant even if we only consider the native speakers' judgments (p-value 0.008472). For the non-native speakers' judgements, the data are significant, but not highly significant (p-value 0.02594). The data are highly significant for the parts 1 and 3 of the experiment, where the recording without an accent on "selten" is played before the recording with an accent on "selten" (p-value 0.003628). For the parts 2 and 4, the data are significant, but not highly significant (p-value 0.04957). Presumably, the variations of the p-values can be explained by the different numbers of tps (ns vs. nns, parts 1/ 3 vs. parts 2/ 4).

⁹ The data are significant even if we only consider the native speakers' judgements (p-value: 0.01921). The data are not significant if we only consider the non-native speakers' judgements (p-value: 0.5). The data are also not significant if we only consider the cases in which the answer without an accent on the focus adverb is played first (part 1 of the experiment, p-value 0.07356), nor if we only consider the cases in which the answer

The data are not significant with regard to a correlation of the dialogue contexts and the preferences for an accent on “meistens”. The one-sided hypothesis, that an accent on “meistens” is preferred if “meistens” does not occur in the interrogative sentence, cannot be confirmed. The t-test for comparing this hypothesis with the null hypothesis (there is no correlation between accentuation and dialogue context) yields a p-value of 0.1512.¹⁰

This result conforms to our hypotheses, although we did not predict it so clearly: “Meistens” can be pragmatically redundant even when it does not occur in the interrogative sentence. We therefore expected the tendency to prefer an accent on “meistens” to be weaker than the tendency to prefer an accent on “selten”. However, it would be compatible with our hypotheses if there were a correlation of the questions under discussion and the accent preferences, so that the explicit occurrence of “meistens” in the question significantly minimizes the preferences regarding an accent on “meistens” in the answer.

3. When the focus adverbs “meistens” and “selten” already occur in the interrogative sentences of our examples, there is no correlation between the choice of the adverb and the tps’ accentuation preferences. The two-sided t-test of hypothesis, that there is such a correlation, yields a p-value of 1.¹¹

The results of the experiment confirm our assumptions: The tendency to accentuate “selten” – or to prefer an accent of “selten”, respectively – is significantly stronger than the tendency to accentuate “meistens”. For an explanation of this phenomenon we assume that the tendency to treat

without an accent on the focus adverb is played second (part 2 of the experiment, p-value 0.1135). Presumably, the high p-values are due to the low numbers of test-items taken into account.

¹⁰ The data are also not significant if we only consider the native speakers’ judgements (p-value 0.3505) nor if we only consider the non-native speakers’ judgements (p-value 0.1215). Moreover, the restriction to an order of presentation does not lead to a significant result: For the parts 1 and 3 of the experiment – where the answer without an accent on “meistens” is played first – we get the p-value 0.1270. For the parts 2 and 4 of the experiment – where the answer without an accent on “meistens” is played second – we get the p-value 0.5506.

¹¹ The p-value does not change if we only take the native speakers, the non-native speakers or one single order of presentation into account. It is always 1.

the focus adverb “meistens” as pragmatically redundant is stronger than the tendency to treat “selten” as pragmatically redundant.

4 Conclusion

We performed two experiments on the accentuation of the focus adverbs “nur” (“only”), “meistens” (“mostly”) and “selten” (“seldom”). The usual focus theories (for an overview cf. [Rooth 1996]) do not make clear predictions on the outcomes of the experiments. Contrary, a theory of optimal accentuation ([Schmitz 2005]) correctly predicts the results. The results can count as evidence for a theory of optimal accentuation.

References

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