# Hesitations and repair in German

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## Abstract

The occurrence of pauses and hesitations in spontaneous speech has been shown to occur systematically, for example, "between sentences, after discourse markers and conjunctions and before accented content words." (Hansson [15])  This is certainly plausible in English, where pauses and hesitations can and often do occur before content words such as nominals, for example, "uh, there's a … man." (Chafe [8])  However, if hesitations are, in fact, evidence of "deciding what to talk about next," (Chafe [8]) then the complex grammatical system of German should render this pausing position precarious, since pre-modifiers must account for the gender of the nominals they modify.

In this paper, I present data to test the hypothesis that pre-nominal hesitation patterns in German are dissimilar to those in English.  Hesitations in German will be shown, in fact, to occur within noun phrase units.  Nevertheless, native speakers most often succeed in supplying a nominal which conforms to the gender indicated by the determiner or pre-modifier. Corrections, or repairs, of infelicitous pre-modifiers indicate that the speaker was unable to supply a nominal of the same gender which the choice of pre-modifier had committed him/her to.  The frequency of such repairs is shown to vary according to task, with fewest repairs occurring in elicited speech which allows for linguistic freedom and therefore is most like spontaneous speech.  The data sets indicate that among German native speakers, hesitations occurring before noun phrase units (pre-NPU hesitations) indicate deliberation of what to say, while hesitations within or before the head of the noun phrase (pre-NPH hesitations) indicate deliberation of how to say what has already been decided (cf. Chafe [8]).

## 1.  Introduction

Pauses in spontaneous speech are naturally occurring phenomena. They establish prosody and flow, as well as facilitate content organization on the part of the speaker (Fromkin [12], Garrett [13], Levelt [18], Mayer, [21, 22], Shattuck-Hufnagel & Klatt [28], Ward [36, 37]) and comprehension on the part of the listener (Brennan & Schober [6], Brennan & Williams [7], Maclay & Osgood [19], Schachter et al [26], Shriberg [29]). Hesitations, on the other hand, might be considered accidental or unintentional pauses and are often regarded as disfluency in speech.  Indeed, hesitations may be due to an ongoing cognitive process which forces speech to slow down or even come to a halt (Bock [4], Bock & Levelt [5], Fromkin [12], Garrett [13], Shriberg [30], Van-Winckel [35]). Research on hesitations as a manifestation of disfluency in speech has largely focused on identifying systematicities of hesitations, resulting in categorization of form (Batliner, et al [3], Shriberg [30], Ward [37]) or of location in discourse (Arnold et al [1], Auer & Uhmann [2], Clark & Fox Tree [9], Fox Tree [10], Hansson [15], Makkai [20], Stenström, [32]).

A large majority of previous research has been based on English, which both allows for the establishing and cross-referencing of norms specific to English, as well as encourages comparison with other languages.  The starting point for this paper is the observation that, in English, hesitations can –and often do– occur before such "accented content words" (Hansson [15]) as nominals.  In other words, hesitations often occur within noun phrase units, for example *after* pre-modifiers such as determiners and adjectives.  It is not uncommon, for example, to encounter hesitations in the following contexts, taken from Chafe [8]:

"uh, there's a … man."

"the … the-- … the basic action,"

where hesitations (or pauses) occur after a determiner. Modern English has no grammatical gender and, consequently, no inflections for gender on pre-modifiers.  Thus, the hesitations in the examples above are most probably cognitive in nature (as opposed to pragmatic), revealing the speakers' active search for a completion to the noun phrase.  In the following example, the meta-language of the filled pause suggests even further that this is the case:

"one of them has a … what do you call those little … um (.85) paddleball?" (Chafe [8])

Unlike English (and to the dismay of its second-language learners), German has retained its inflections and still has a complex grammatical system of gender and case.  Pre-modifiers of nouns, for example, must show agreement in gender, for example: *der Hund*, where *der* is the masculine definite article; *ein grosser Hund*, where *ein* is the masculine indefinite article and *–er* is the strong, masculine adjective inflection.  Gender is part and parcel of the German noun system and, as such, pre-modifiers should be less prone to being teased apart from their nouns by cognitive processes than they are in English (at least in terms of cognitive processes reflecting lexical decision making; Tseng [34] gives examples of parentheticals in German in pre-NPH). While, Wode [38] did not identify hesitations in German specifically occurring in pre-NPH position, Langer [17] provides examples of pre-NPH hesitation and repair similar to Chafe's [8] examples. The questions at hand, therefore, are the following: what is the distribution of pre-nominal hesitations (pre-NPU vs. pre-NPH) occurring in German, and how are hesitations within the noun phrase unit resolved?

## 2.  Method

### 2.1.  Multi-task experiment set

In order to investigate the distribution of pre-nominal hesitations in German native-speaker speech, a multi-task experiment set was designed.  The experiment set consisted of three tasks, detailed below, allowing for different degrees of spontaneity in speech.

The experiments were conducted at Universität des Saarlandes (Saarbrücken, Germany) among university students.  Participants in each of the tasks were all native speakers of German and, at the time of the experiment, between the ages of 20 and 23.  In addition to age, gender of the participants was noted and, for one particular experiment,

number of semesters of English studied at university level. A total of 26 males and females took part in one or more of the experiments. The participants were not informed of the specific purpose of the experiments, only that each experiment was to investigate linguistic phenomena. All output was tape recorded, with consent from each participant.

## 2.2. Object description

An object description experiment was designed to create a situation which would be conducive to hesitating due to cognitive processing of the names of familiar and unfamiliar items (cf. Chafe [8]). Participants were shown two index cards: one card with an adjective written on it such as *gross* (big), and one card with a nominal written or pictured. The participants were then asked to provide, as quickly as possible, a noun phase consisting of the words indicated by the words or pictures on the cards, and including the definite article. After receiving instructions, each participant was presented with an example of expected output: when shown cards with the word *gross* and a picture of a dog or the word *Hund*, the participant should say, "*der grosse Hund.*" In order to avoid the possibility of phonetic neutralization, participants were asked to provide the definite article (*der, das* or *die*) for each noun phrase as opposed to the indefinite article (*ein, ein* or *eine*).

Following Chafe's [8] experiment in which participants were asked to retell the events of a film which featured "objects that [were] expected to be high in codability and objects with which [it was] expected speakers would have difficulty," the nominals on the cards consisted of familiar objects such as *Hund* (dog) and presumably unfamiliar objects (based on pre-experiment judgments from members of the same speech community) such as a *Strickliesel* (yarn holder) and brandnames such as 'Nutella'. In addition, adjective cards were included for the purpose of creating a longer noun phrase than determiner+noun, which, it was hoped, would allow for more opportunity for hesitating. The complete set of 37 nominals included: ten objects presented as words: *Abszess, Aerobic, Baldachin, Banner, Konklave, Kuvert, Manufaktur, Reklamation, Tuberkel*; ten objects presented as pictures: *Bienenstock, Grammophon, Gravur, Haus, Hund, Monokel, Musterklammer, Pentagon, Strickliesel, Tipi;* and 17 product names: *Blistex, Bounty, Cillit Bang, Colgate, Corvette, Fiesta, General, Golf, Hanuta, Labello, Lenor, Nutella, Toffifee, Touareg, Twix, Urquell, Whiskas.* The ten adjectives included: *blau, dick, gelb, gross, grün, gut, klein, rot, schlecht, weiss.*

Participants in the object description experiment included ten male and ten female German native speakers (20 total participants).

## 2.3. Translation

A translation experiment was designed to represent an increased degree of spontaneity in speech while still controlling for stimuli and thus creating a situation which would encourage cognitive processing and, presumably, hesitations. Participants were given two minutes to silently read through a short narrative (see below) in English, which they were then to translate into German. When their reading time was over, the participants were told to translate the passage as quickly as possible and as best they could without asking for help with or clarification of vocabulary.

The translation narrative was chosen for its inclusion of English noun phrases which could have several possible translations in German (such as 'party', which could be (*die*) *Party* or (*das*) *Fest*), nominal constructions which would more idiomatically occur as verbalizations in German ('an announcement was made'), or words likely to be unknown to the participants ('proctor'): *Once upon a time, there was a student named John. Most people who knew him considered John to be a disaster. In fact, he hardly had a reputation as a source of pleasure, and his classmates looked for any chance to keep their distance from him. A party was a rare scheduling on his calendar indeed, and his absence was hardly missed.*

*One day during the holidays – which were particularly lonely and filled with doubt about his likeability – John got the idea of going on an exchange. He hoped it would provide an escape from his environment and be the end to the failure he usually experienced in social settings.*

*In order to partake in the exchange, John just needed to pass the end-of-term exam, a minor detail, or so he thought. However, on examination day, an announcement was made that the exam would have to be postponed. The reason for the delay was that the proctor had suddenly cancelled due to a pain in her stomach, and no one else was available to do the job. Unfortunately, John was to leave for his exchange later that day. In the end, he ...*

The translation narrative ended with an unfinished sentence, which the participants were told to complete in order to conclude the narrative. This last task reflects an attempt to incorporate spontaneous speech as a point of comparison.

Participants in the translation experiment included eight male and five female German native speakers (13 total participants). As the task consisted of translating from English to German, it was necessary that the participants have an adequate proficiency in English, in other words, at least two semesters of English university study.

## 2.4. Retelling

Like the translation experiment, the retelling experiment was also designed to represent an increase in spontaneity while still controlling for stimulus and input. Participants were given two minutes to silently read a lengthier narrative in German, which they were then to retell in as much detail as possible, also in German. No time limit was imposed on the retelling, nor were the participants instructed to be quick. As in the translation task, participants had no recourse to clarification.

The retelling narrative was chosen for its uncommon juxtaposition of characters and plot –a toxicologist and veterinarian foil a would-be thief– as well as for the high frequency of nominals:

*Es war einmal ein junges erfolgreiches Paar. Eines schönen Tages saßen die Veterinärmedizinerin und der Toxikologe in ihrem schönen großen Garten auf der Hollywoodschaukel, als ihnen die Idee kam, zu verreisen. Sofort rannte die Veterinärmedizinerin ins Haus, um den Reisekatalog zu holen. Nach mehrmaligem Durchblättern stellten beide enttäuscht fest, dass die Destinationen ihnen nicht gefielen. Um die Auslandsinvestition dennoch zufrieden stellend zu tätigen, fuhren beide ins nächstgelegene Reisebüro. Dies grenzte unmittelbar an das Internetcafe „Online“. Im Reisebüro empfing sie die Reiseverkehrs-kauffrau mit einem tollen Angebot: „Ich empfehle Ihnen das Gipfeltreffen der Ministerpräsidenten aller Industrieländer im reichen Emirat Dubai“, sagte sie begeistert. Freudig stimmten der Toxikologe und die Veterinärmedizinerin zu, denn nach Dubai wollten sie schon immer. Dort angekommen erhielten sie die Hiobsbotschaft, es sei kein Zimmer gebucht. Sie standen auf der Straße. Plötzlich tauchte neben ihnen der Trickdieb Ranjid auf und versuchte der Veterinärmedizinerin den*

*Pradarucksack zu entreißen. Geschickt konnte der Toxikologe den Entwendungsdelikt abwehren, indem er den Karategriff anwendete, den er letzte Woche im heimischen Kurs gelernt hatte. Der Dieb nahm Reißaus. Ohne zu zögern rief der Toxikologe im Reisebüro an, um über die Kostenerstattung des Höllentrips zu verhandeln. Am anderen Ende der Leitung versuchte die Reiseverkehrskauffrau den aufgebrachten Mann zu beruhigen. Das unglückliche Paar solle zunächst die Übergangsunterkunft der deutschen Botschaft nutzen. Endlich dort angekommen erhofften sich die Leidgeplagten etwas Ruhe und Erholung. Doch im Zimmer nebenan lief der Monumentalfilm „Spartakus" in einer solchen Lautstärke, dass die Veterinärmedizinerin das Ohrensausen ihres Lebens bekam. Auch das Hypnotikum, dass ihr der Toxikologe verabreichte, half nicht. Sofort fuhr das Paar zum Flughafen und flog mit der Concorde nach Hause. Über das Mysterium dieser ungewöhnlichen Reise dachten die Unglücksraben noch lange nach.*

Participants in the retelling experiment included 12 male and 13 female German native speakers (25 total participants).

## 3. Data analysis

All data were recorded digitally using an Olympus Digital Voice Recorder or a Sony IC Recorder. The recordings were then transcribed with all hesitations represented in orthographic approximations (in the case of filled pauses or hesitations) or as silences, regardless of position. The transcriptions were then checked against the recordings to assure accuracy of identification and position of hesitations. In the data analysis, no distinction was made between pauses, hesitations, fillers, filled pauses, filled hesitations, etc., nor were silences timed. Any interruption in fluency, even meta-linguistic, was considered a hesitation and therefore this term will be used throughout the data analysis sections for the sake of simplicity and consistency.

### 3.1. Object description

Each of the 20 participants in the object description experiment produced 37 noun phrases, resulting in a total of 740 three-word noun phrases. Due to the design of the experiment, initial hesitations were to be expected; the participants needed time to read or look at the information on the cards and therefore immediate responses were impossible. A time of two seconds was determined sufficient for reading; any extension of this time would therefore be considered a hesitation. In general, the problem of distinguishing reading time from hesitation was solved by the participants themselves, who most often marked the end of their reading time with audible cues such as inhalations, exhalations or utterances like, "Hmm."

As each noun phrase was produced in isolation, all noted hesitations are included in the pre-nominal hesitation data analysis. A total of 226 hesitations were produced, corresponding to an average of 11.3 per participant. Of the total, 158 (70%) occurred before the noun phrase unit (pre-NPU position), while 68 (30%) occurred within the noun phrase unit (pre-NPH). Table 1 shows the distribution of hesitations in real numbers and percentages.

**Table 1:** Distribution of object description hesitations.

|  | Hesitations | pre-NPU | pre-NPH | Repairs |
|---|---|---|---|---|
| Number: | 226 | 158 | 68 | 23 |
| % of total : | 100% | 70% | 30% | 10% / 34% |

At 70%, the amount of pre-NPU hesitations clearly shows a significant (one sample t-test: $p<0.05$) tendency among

speakers to approach the noun phrase as a unit, most frequently pausing before the determinatives to identify objects and/or determine gender. However, the 68 hesitations occurring *within* the noun phrase unit (pre-NPH) indicate that some speakers may, in fact, commit to a gender before considering the nature of the nominal. It is interesting to now take a closer look at these pre-NPH hesitations. Only 29% of these hesitations (20 from a total of 68) occurred between the definite article and adjective. These hesitations cannot be considered in terms of linear cognition; in other words, the speaker is most definitely not deciding what to say next since the subsequent (final) two words of the noun phrase are provided. The same conclusion must therefore also apply to the hesitations occurring between the adjective and the head, a clear majority at 71% (48 from a total of 68). Instead, each of these pre-NPH hesitations may more accurately be considered evidence of deliberation over the congruence of the chosen determiner.

Infelicities in grammatical gender did occur: in 110 instances (15% of the total number of noun phrases produced), the original article chosen did not reflect the correct gender of the nominal. However, only 23 of these instances resulted in repairs, corresponding to only 21% of the total number of mistakes. Repairs were always preceded by hesitations; thus, 34% of the pre-NPH hesitations resulted in repairs. Approximately two-thirds of these repairs occurred after the adjective, suggesting that the closer the speaker comes to the head of the noun phrase, the greater the chance is of infelicities being noticed and repaired.

### 3.2. Translation

Compared to the object description task, the translation task was designed to be more challenging in terms of cognitive demands. The two-minute time limit on the reading of the English text along with the instruction to provide a translation as quickly as possible reduced planning time and encouraged on-line processing. The result was a clear tendency to attempt linear, word-for-word translations, which were often problematic at best, unsuccessful at worst and delivered with uncertainty. The consequent hesitations seemed to be cognitive in nature, reflecting efforts among the participants to understand the text as well as to determine not only what to say in German, i.e., translation equivalents, but also how to say it, i.e., how to frame or structure the text.

The translation experiment yielded a total of 420 hesitations. Distributed among 13 participants, the average number of hesitations per participant is 32.3. Considering the brevity of the text, the total as well as the average number of hesitations would seem to confirm the proclaimed level of difficulty.

Of the total number of hesitations, 197 (47%) were pre-nominal hesitations and therefore included in the data analysis. These pre-nominal hesitations consisted of 78 (40%) pre-NPU hesitations and 119 (60%) pre-NPH hesitations. Table 2 shows the distribution of hesitations in real numbers and percentages.

**Table 2:** Distribution of pre-nominal translation hesitations.

|  | Hesitations | pre-NPU | pre-NPH | Repairs |
|---|---|---|---|---|
| Number: | 197 | 78 | 119 | 29 |
| % of total : | 100% | 40% | 60% | 15% / 24% |

Unlike the hesitations which occurred in the object description task, the majority of pre-nominal hesitations found in the translation task occurred in pre-NPH position, a significant difference not only across tasks, but also locally (one and two sample t-tests: $p<0.05$).

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Pre-nominal hesitations accounted for almost half of the total, 420 hesitations. However, 202 other noun phrase units occurred uninterrupted by hesitations – almost twice the number of interrupted, disfluent noun phrases. Thus, like the data from the object description experiment, the translation experiment data also reveal a tendency among German speakers to treat noun phrases as units. This conclusion represents different means of arrival: the tendency is proved by examining both where hesitations do occur as well as where they do not.

The two data sets reveal an opposite distribution of pre-NPU vs. pre-NPH hesitations, and the value differences are indeed significant (two sample t-test: p<0.05). One possible reason for this lies in the nature of the tasks and the degree of linguistic freedom they allowed. In the object description task, two of the three words comprising the noun phrase were predetermined. In the translation task, the stimulus was predetermined, but there remained a fair amount of freedom in terms of response. Thus, pre-NPH hesitations stood a greater chance of more successful resolutions.

As observed in the object description data, resolutions to hesitations included corrections, or repairs. The last column of Table 2 shows the number of pre-nominal, more specifically, pre-NPH hesitations which resulted in repairs. Although more than the 10% of overall object description hesitations (see Table 1), the figure of 15% of overall hesitations followed by a repair in the translation task is insignificant (two sample t-test: p=0.12). Specific to pre-NPH hesitations, the number of repairs found in the translation data represents a lower percentage (24%) than in the object description data (34%). However, this difference is also insignificant (two sample t-test: p=0.14). Thus, in terms of tendencies among Germans to resort to repairs as a resolution to hesitations, no conclusion can be drawn based on the data so far.

### 3.3. Retelling

The retelling task represented the greatest degree of linguistic freedom within the multi-task experiment set and, as such, elicited speech which most closely represents spontaneous speech. In addition to providing a greater degree of linguistic freedom, the retelling task incorporated participant freedom. The lack of time limit minimized stress while the instructions of retelling the story in as much detail as possible were subject to individual interpretation and standards. It is not surprising, therefore, that the hesitation patterns observed in the retelling data differ considerably from the data acquired from the first two tasks. With a total of 25 participants as well as a longer text than in the translation task, there was clearly a greater opportunity for hesitations to occur. However, the retelling task resulted in the overall least amount of hesitations and, equally notable, the fewest repairs. Table 3 shows the distribution of hesitations in real numbers and percentages.

**Table 3:** Distribution of retelling hesitations.

|  | Hesitations | pre-NPU | pre-NPH | Repairs |
|---|---|---|---|---|
| Number: | 135 | 36 | 99 | 4 |
| % of total: | 100% | 27% | 73% | 3% / 4% |

The shift in hesitation type, in terms of syntactic position, that was observed in the translation data is further established by the retelling data (two sample t-test: p<0.05). Clearly, the hesitation pattern originally hypothesized and most frequently found in the object description cannot be confirmed as the default pattern. Instead, the retelling data show that hesitations do occur within the noun phrase and furthermore are resolved felicitously without repair. As the tasks and the data they elicit more closely approach spontaneous speech, the more frequently pre-NPH hesitations occur and the less frequently repairs occur. Only 3% of the total hesitations corresponding to 4% of the pre-NPH hesitations resulted in repair. Although in both real numbers and percentages, the greatest amount of repairs were observed in the translation task, it must be noted that the object description task resulted in the most infelicities which may have been repaired in less time restrictive circumstances, or not have occurred at all in more natural speech situations. There is indication, therefore, of frequency of repairs decreasing by task or increasing in direct proportion to the spontaneity of speech.

The emergent hesitation and repair distribution patterns now call for a hypothesis of what can be concluded about hesitations in the spontaneous speech of German native speakers.

## 4. Discussion

Unlike speakers of English, who can haphazardly utter pre-modifiers without committing to a specific noun, German speakers must decide on at least a gender of a noun before they can utter pre-modifiers. They may also have to consider predicators or prepositions as well, in order to determine case. Due to the variety of possible grammatical inflections to account for, it was hypothesized that pre-nominal hesitations among speakers of German would occur overwhelmingly before the noun phrase unit, unlike hesitations in English, which often occur within the noun phrase. The experiments were designed to provide ample opportunity to observe hesitation patterns in the speech of German native speakers by presenting participants with cognitively challenging tasks and demanding real-time linguistic output.

One of the most important findings of this pilot study is that German native speakers cannot always immediately produce fluent, grammatical speech. While arguably obvious as well as applicable to speakers in general, it is a point that needs to be made explicit so as to provide a framework for interpreting hesitations. In the object description task, the participants were given two out of three noun phrase elements and, in spite of this, needed to pause or hesitate an average of 11.3 times per 37 noun phrases. Such hesitations are most certainly cognitive and not a product of experiment design: the words which most frequently caused hesitations appeared in text form, not as pictures.

Hesitations within the noun phrase were rarest in this experiment due first to the restricted context, and second to the fact that, in essence, this task tested the participants' knowledge of grammatical gender. Gender is part and parcel of German nominals; one is rarely decided independently of the other. However, hesitations within the noun phrase did occur, quite possibly as a result of the instructions to be quick to provide the noun phrases. Fewest hesitations were to be found between the definite article and adjective, which can be attributed to the fact that adjectives were provided.

Data from the translation task show a pattern of hesitation distribution different from the pattern established from the object description task. Thus, the original hypothesis is challenged, namely, that pre-nominal hesitations mostly occur in pre-NPU position. Instead, the translation data indicate that hesitations pattern in much the same way in German as in English; that is, hesitations occur before nominals, within noun phrases. In German, this distribution increases the opportunity for ungrammaticalities and, indeed, almost a quarter of the pre-NPH hesitations preceded a repair. It is not only difficult to believe but also contrary to personal observation and communication that German native speakers

repair with such frequency. However, the recorded translation data reveal that the hesitations are often filled with meta-linguistic mumblings about how to proceed or what a particular word means. Thus, it would seem that, perhaps due to the time pressure, the majority of participants attempted a word-for-word translation and, in so doing, adopted the hesitation behavior (i.e., pre-NPH hesitations) common to the source language, English. As in the object description task, the repairs indicate an awareness of as well as intolerance for grammatically infelicitous pre-modifiers. On the other hand, the translation task was not as linguistically restrictive as the object description task, resulting in much fewer errors, none of which was left unrepaired.

The data from the retelling task further disproved the original hypothesis, establishing pre-NPH hesitations as the most common. Despite the fact that the retelling task provided the greatest opportunity for speech production and involved the most participants, hesitations were least frequent in this task. It is important to point out that the retelling task allowed for the greatest degree of spontaneity in speech among the participants and was also without time pressure. It is furthermore interesting to note that, although the text was chosen for its use of uncommon characters and bizarre events, which the participants were told to retell in as much detail as possible, many of the retellings had details omitted or were significantly different than the original narrative. Unlike the translation task, in which the participants could consult the narrative text in front of them, the retelling task did not allow the option of consulting the text. Thus, different capabilities in remembering details or varying standards of accuracy contribute to both variation between original and retold texts as well as great inter-participant variation.

Because of the reduced restriction on output and a lack of time pressure, the retelling task elicited speech that is much more similar to natural, spontaneous speech than the speech elicited from the other two experiment tasks. This data set is also conspicuous in the low number of repairs, suggesting that the naturally occurring spontaneous speech of German native speakers is also low in repairs. Hesitations occurred most frequently in pre-NPH position. However, this does not necessarily challenge the suggestion that German native speakers treat pre-modifier+noun clusters (i.e., noun phrases) as single units. It may rather provide support for the claim that pre-NPH hesitations reflect a deliberation of how to say what is already chosen since hesitations tended to be followed by gender felicitous nominals. The hesitations can thus be considered both pragmatic and cognitive, in that they allow the speaker to hold the floor while planning further ahead. While hesitations in German pattern much like hesitations in English, pre-NPH hesitations do not reflect the same cognitive purposes that they would do in English. Chafe's [8] conclusion that "[the] fundamental reason for hesitating is that speech production is an act of creation" cannot be applied to German in terms of immediate, on-line processing as Goldman-Eisler [14] and Siegman [31] suggest is the case for hesitating in English. Instead, German pre-NPH hesitations may indicate cognitive processes that reflect longer-term planning than what is required of speakers of English.

## 5. Application

The experiments conducted for this pilot study represent a personal interest in ultimately ridding my non-native German speech of disfluencies, which most often occur as pre-nominal, pre-NPH hesitations and subsequent repair. The fact that I do repair is encouraging and indicative of respect for, if regrettably not a total command of, the German case and

gender system. The root of the problem lies rather in a transfer of the typical English disfluency pattern: pre-NPH hesitations. Learners of German, it can be argued, may benefit from learning to hesitate as Germans do. Thus, studying native speaker disfluencies in speech can play a role in language acquisition, as Scanlan [25] has endeavored to investigate and which begs further consideration. Whether or not language students strive for native speaker-like fluency, which Jenkins [16] argues is not always the ideal, acquiring language-specific hesitation patterns may be a step in acquiring the accompanying cognitive processes which may, in turn, result in a greater understanding and command of the language and as well as control over spontaneous speech.

A further application of this research which offers truly exciting prospects is to first language attrition. The translation task data suggested that the participants attempted word-for-word translations of the English text, an approach to language production that is reminiscent of non-native speakers translating or transferring their L1 to the L2. It may also be a practice common to native speakers losing their L1 due to lack of use in favor of an L2. Consideration of hesitations and pauses may provide more evidence of whether or not hesitation patterns can be transferred and/or relearned or reacquired, and might also help to indicate degree of attrition. For recent work on language attrition, see Schmid, et al [27].

## 6. Acknowledgements

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