

Inflectional Parallelism With German Adjectives¹

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1. Introduction

Elements in the noun phrase exhibit a phenomenon, often called ‘concord’, where these elements share agreement features in case, number and gender (and perhaps person). While this is a widespread phenomenon in the world’s languages, it manifests itself in slightly different ways cross-linguistically. This becomes clear when one compares the inflections on elements of certain lexical categories. For instance, while some languages make a morphological difference between determiners and adjectives, other languages do not. Compare the following dative noun phrases, where German has different endings but Russian does not:

- | | | | |
|-----|----|--------------------------------|-----------|
| (1) | a. | dies-em gut-en teuer-en Wein | (German) |
| | | this good expensive wine | |
| | | ‘this good expensive wine’ | |
| | b. | ët-omu dobr-omu dorog-omu vinu | (Russian) |
| | | this good expensive wine | |

However, what these languages, including the German and Russian examples in (1), have in common is that co-occurring adjectives typically have the same inflections. I refer to this generalization as ‘inflectional parallelism’. From this perspective, I will discuss a case in German where the endings differ on co-occurring adjectives.

Among others (see below), Demske (2001: 53) provides the following inflectional patterns for garden-variety noun phrases containing two adjectives: with the discussion of (1) in mind, the expected pattern is provided in (2a) and the unexpected pattern in (2b) (unless otherwise indicated, the data are provided with their original judgments throughout the paper):

- | | | | |
|-----|----|---------------------------------|----------|
| (2) | a. | mit frisch-em schwarz-em Kaffee | (German) |
| | | with fresh black coffee | |
| | | ‘with fresh black coffee’ | |
| | b. | mit frisch-em schwarz-en Kaffee | |
| | | with fresh black coffee | |

Comparing the differing inflections on the first two elements in (2b) to those in (1a), one might feel tempted to suggest that both adjectives in (2b) are also of a different kind, perhaps of different lexical categories (for such a case, see footnote 12). However, I will demonstrate that,

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on the one hand, this alternation is very restricted in that it only involves nasal sounds and that, on the other, this alternation is more general in that it also occurs in other nominal constructions, in particular, in indefinite pronoun constructions.

I argue in favor of a bipartite proposal: one of the two mechanisms involves a structural component (Roehrs 2006, in prep.) and the other a post-lexical phonological rule. The application of the latter is “constrained”, presumably by language-processing factors. Interpreting the alternation in (2) as a post-lexical, that is, lower-level process will allow us to keep the generalization of inflectional parallelism within the category of adjectives. To be clear, then, the two main findings of this paper are: (i) there is inflectional parallelism with German adjectives and, consequently, adjectives are clearly of a different lexical category than determiners, and (ii) the distribution of endings in German is a reflex of several mechanisms.

The paper is organized as follows: in section 2, I discuss the type and distribution of inflections on determiners and adjectives in German. Against this background, the (apparent) exception illustrated above is discussed in more detail in section 3. Sections 4 and 5 discuss the questions of how general this diverging pattern is and what the nature of this phenomenon is. In sections 6 and 7, I provide the bipartite proposal. After the discussion of a different type of nasal alternation in section 8, the paper is summarized in the conclusion. In the appendix, I tentatively suggest a possible extension of the proposal to morphological alternations in pseudo-partitives and certain *als*-adjuncts in German.

2. General Background

In the German noun phrase, there are two much-discussed generalizations involving the alternation of certain endings (for general background, see Duden IV, 1995: pp. 277; for critical discussion and references, see Roehrs 2006). One generalization deals with the different types of endings, the other with the distribution of these endings. Let us consider each in turn. This section provides the necessary background for the discussion to follow.

2.1. Types of endings

Going back to Jacob Grimm (1870: 718-756), there are two sets of endings: the ‘strong’ and the ‘weak’ paradigms. Turning to the strong set first, compare tables 1 and 2 below. One can see that the strong adjective has the same number and tabular distribution of endings as the determiner.² The only exception is in the masculine and neuter genitive (for some discussion, see footnote 5). This difference is marked in bold print in table 2:

² There are some apparent exceptions to this: (i) *ein* ‘a’, *kein* ‘no’, and possessive elements such as *mein* ‘my’ as well as a co-occurring “mixed” adjective differ in three cases (nominative masculine and nominative/accusative neuter; for discussion, see Roehrs 2006: Chap. 4, below), and (ii) the final *-e* on the definite article *die* ‘the’ and the personal pronoun *sie* ‘she/they’ is not pronounced as schwa but as (part of the) long [i:] (for the discussion and reinterpretation of the strong/weak inflection schwa, see Roehrs 2007b).

Table 1: Inflections on the Demonstrative

Case\Gender	Masculine	Neuter	Feminine	Plural
Nominative	dies-e-r	dies-e-s	dies-e	dies-e
Accusative	dies-e-n	dies-e-s	dies-e	dies-e
Dative	dies-e-m	dies-e-m	dies-e-r	dies-e-n
Genitive	dies-e-s	dies-e-s	dies-e-r	dies-e-r

Table 2: Strong Adjectival Inflections

Case\Gender	Masculine	Neuter	Feminine	Plural
Nominative	gut-e-r	gut-e-s	gut-e	gut-e
Accusative	gut-e-n	gut-e-s	gut-e	gut-e
Dative	gut-e-m	gut-e-m	gut-e-r	gut-e-n
Genitive	gut-e-n	gut-e-n	gut-e-r	gut-e-r

In more detail, the strong paradigm has five different endings (*-r*, *-s*, *-m*, *-n*, *-e*), and considering table 3 below, the weak one has just two (*-n*, *-e*). One can state that, on the one hand, the strong set of endings has more exponents than the weak one but that, on the other, the weak endings form a proper subset of the strong endings. Furthermore, while ten (out of sixteen) cells are different (marked in bold print in table 3), there is also some inter-paradigmatic syncretism and at least one cell is identical with the strong and weak endings in each of the different morphological cases, genders, and the plural.

Table 3: Weak Adjectival Inflections

Case\Gender	Masculine	Neuter	Feminine	Plural
Nominative	gut-e	gut-e	gut-e	gut-e-n
Accusative	gut-e-n	gut-e	gut-e	gut-e-n
Dative	gut-e-n	gut-e-n	gut-e-n	gut-e-n
Genitive	gut-e-n	gut-e-n	gut-e-n	gut-e-n

This discussion can be summarized as the following first generalization:

- (3) *I. (Non-)Identity*
- The ending on the determiner = the strong ending on the adjective.
 - The strong ending on the adjective \neq the weak ending on the adjective.

To be more precise about the equal sign in (3a), I assume that the null hypothesis is that, unless there is strong evidence to the contrary, the strong endings on the two different types of lexical elements are not only simply homonymous but, in fact, identical in nature. Below, we will see that there is no strong, convincing evidence against this assumption. If so, there are two sets of endings: the strong and the weak types of inflections. Furthermore, these endings are independent of lexical category such that both determiners and adjectives can be strong, and elements of the same lexical category may have different endings; for instance, adjectives can have both strong and weak endings:

- (4) a. determiner — strong inflection
 b. adjective — weak inflection

As implied by (4), determiners do not appear with a weak ending.³ Consider the distribution of the strong and weak inflections in more detail.

2.2. Distribution of endings

As can be seen in (5), the strong ending precedes the weak one:

- (5) a. der gute Wein
 the(NOM.STRONG) good(WEAK) wine(MASC)
 ‘the good wine’
 b. dieser gute Wein
 this(NOM.STRONG) good(WEAK) wine(MASC)
 ‘this good wine’
 c. jeder gute Wein
 every(NOM.STRONG) good(WEAK) wine(MASC)
 ‘every good wine’

However, assuming a null determiner for (6a), we notice that the distribution of the weak endings has nothing to do with the presence of a determiner *per se* but rather with the presence of a strong ending on the determiner:⁴

- (6) a. guter Wein
 good(NOM.STRONG) wine(MASC)
 ‘good wine’
 b. ein guter Wein
 a good(NOM.STRONG) wine(MASC)
 ‘a good wine’
 c. Peters guter Wein
 Peter’s good(NOM.STRONG) wine(MASC)
 ‘Peter’s good wine’

What the examples in (5) and (6) have in common is that a strong ending appears in each noun phrase. The second generalization can now be stated as a set of entailments:

- (7) II. Asymmetry
 a. A weak ending on an adjective → a strong ending on a determiner.
 b. A strong ending on an adjective → the lack of such an ending on the determiner
 (including a null determiner whose ending is trivially null).

³ In earlier work (Roehrs 2006), I proposed that certain cases of *ein* ‘a’ can have a weak ending. In Roehrs (2007b), I propose that these instances have no actual inflectional ending but rather an abstract suffix.

⁴ Evidence for the presence of a null determiner comes from other languages (e.g., *du* in French) and from the fact that adjectives need to be licensed by the presence of a determiner in other cases (see Roehrs 2006: 23).

As determiners syntactically precede adjectives in German, we establish a sequence of endings that shows a left-to-right asymmetry: determiners with strong endings precede weak adjectives and determiners without inflection precede strong adjectives. In contrast to section 2.1, then, the distribution of endings, but not the type of ending *per se*, is dependent on the lexical category. Rendering (7a-b) more abstract, we obtain (8a-b), respectively, where precedence is marked by <. Generalizing further, the distribution of inflections depends on the presence of different lexical categories, marked by α , β , and γ in (8c), where $\alpha \neq \beta \neq \gamma$ and each variable may, in principle, but constrained by the syntax, range over determiner and adjective:⁵

- (8) a. $\text{STRONG}_{\text{Det}} < \text{WEAK}_{\text{Adj}}$
b. $\emptyset_{\text{Det}} < \text{STRONG}_{\text{Adj}}$
c. $\emptyset_{\alpha} < \text{STRONG}_{\beta} < \text{WEAK}_{\gamma}$

We may say that a weak ending is “anaphoric”, that is, parasitic on the presence of a strong inflection and that precedence, as understood here, coincides with a change in lexical category.

In what follows, I investigate if the two generalizations, as stated in (3) and (7), are correct. In other words, I will not attempt to explain in this paper why the strong ending precedes the weak one (and not the other way around, but see Roehrs 2006 and references cited therein).

3. An Alleged Case of Inflectional Alternation Within One and the Same Category

Initial support for generalization II in section 2 comes from the inflectional behavior of co-occurring adjectives. As can be seen in (9) through (11), all co-occurring adjectives have identical endings:

- (9) a. der gute süße Wein
the(NOM.STRONG) good(WEAK) sweet(WEAK) wine(MASC)
‘the good sweet wine’
b. der guten süßen Milch
the(DAT.STRONG) good(WEAK) sweet(WEAK) milk(FEM)
‘the good sweet milk’

⁵ Adjective-noun combinations in the genitive masculine (and neuter), as in (ia), seem to present problems for generalizations I and II: on the one hand, an (apparent) *weak* inflection is on an adjective in a “strong” context; on the other, an (apparent) strong ending on a noun *follows* a weak inflection on an adjective:

- (i) a. guten Weins
good(GEN.WEAK) wine(MASC.GEN)
‘(of) good wine’
b. des guten Weins
the(GEN.STRONG) good(WEAK) wine(MASC.GEN)
‘(of) the good wine’

However, besides the fact that a (true) strong ending can precede the weak adjective at the same time (ib), I show in Roehrs (to appear) that, while the inflection on the adjective in (ia) is the result of a diachronic change from *-s* to *-n* (see also section 8), the noun inflection is not adjectival.

- (10) a. guter süßer Wein
 good(NOM.STRONG) sweet(NOM.STRONG) wine(MASC)
 ‘good sweet wine’
 b. guter süßer Milch
 good(DAT.STRONG) sweet(DAT.STRONG) milk(FEM)
 ‘good sweet milk’
- (11) a. ein guter süßer Wein
 a good(NOM.STRONG) sweet(NOM.STRONG) wine(MASC)
 ‘a good sweet wine’
 b. einer guten süßen Milch
 a(DAT.STRONG) good(WEAK) sweet(WEAK) milk(FEM)
 ‘a good sweet milk’

As can easily be verified, these distributional patterns do not cause a problem for generalization II as the same endings on different adjectives have just one and the same entailment statement for a determiner. If this generalization is correct, then we predict that different endings on co-occurring adjectives should not be possible.

Proceeding in more schematic terms (for concrete examples, see section 4), two *different* adjectives have contradictory entailment statements for a *single* determiner. To be concrete, the schematic examples in (12a-b) would cause a problem for generalization IIb (i.e., a strong adjective entails the lack of a strong ending on a determiner) and the schematic examples in (12c-d) would present a problem for generalization IIa (i.e., a weak adjective entails the presence of a strong ending on a determiner):

- (12) a. * STRONG_{Det} < STRONG_{Adj} WEAK_{Adj}
 b. * STRONG_{Det} < WEAK_{Adj} STRONG_{Adj}
 c. * Ø_{Det} < STRONG_{Adj} WEAK_{Adj}
 d. * Ø_{Det} < WEAK_{Adj} STRONG_{Adj}

With one exception (see momentarily), we will see in section 4 that all these schematic cases in (12) are ungrammatical.⁶ If this is so, it seems to be desirable to keep generalization II and cases diverging from it should be examined with care.

As already briefly discussed in the introduction, Demske (2001: 53) provides the inflectional patterns in (13a-c) for garden-variety noun phrases with two adjectives. While Demske’s work is partially based on Gallmann (1996: 296; see also more recently 2004: 156), the latter provides (13d). This completes the data set. Note that Müller (2002b: 139) marks an example like (13b) with one question mark put in square brackets:

⁶ This is not surprising from a learnability perspective, according to which one might expect parallelism within category as that would make it easier for the learner to acquire the words and their relevant morphological, syntactic, and semantic properties. If so, one might state a third, more general generalization for the nominal domain:

(i) III. *Generalized Inflectional Parallelism*

Co-occurring elements of the same lexical category show identical inflections.

In this paper, I concentrate on adjectives (for the discussion of inflectional parallelism with determiners and determiner-like elements, see Roehrs in prep.).

- (13) a. mit frischem schwarzem Kaffee
 with fresh(STRONG) black(STRONG) coffee(MASC)
 ‘with fresh black coffee’
- b. [?] mit frischem schwarzen Kaffee
 with fresh(STRONG) black(WEAK) coffee(MASC)
- c. * mit frischen schwarzem Kaffee
 with fresh(WEAK) black(STRONG) coffee(MASC)
- d. * nach langen schweren Leiden
 after long(WEAK) hard(WEAK) suffering(NEUT)
 ‘after long hard suffering’

Starting with the ungrammatical cases in (13c-d), they are captured by generalization IIa as there is no (strongly inflected) determiner present. Turning to the grammatical instances in (13a-b), the first example is expected but the second one is not as the adjectives *frisch* ‘fresh’ and *schwarz* ‘black’ have different inflections. At face value, then, the strong-weak alternation in (13b) is like the schematic case in (12c) above and presents a problem for generalization II. While we will return in section 7 to the grammatical status of (13c) and (13d), that is, to the degree of their ungrammaticality, let us first ascertain how general this pattern is.

4. Question I: Is this Alternation more General?

In the previous section, we saw that a weak adjective can follow a strong one. In this section, we investigate the question of how general this phenomenon is. As such, this section deals with a data question. If it were to turn out that the above-mentioned alternation within the category of adjective were more wide-spread, then one could suggest a different generalization dealing with the distribution of endings. On a surface level, one could state this as in (14). Unlike the above generalization, here the strong-weak alternation could also occur within the same lexical category. To be clear, what is at stake here is the question of whether or not the distribution of endings is independent of the lexical categories involved:

- (14) II'. *Asymmetry (more general, but not true)*
 A weak ending *follows* a strong ending.

Although this generalization is, in certain ways, more general, it will become clear in this section that generalization II' does not capture the cases correctly but that generalization II from above does. To see this, we consider other sequences of two adjectives.

As already illustrated above, there is one scenario where we find a strong ending on adjectives, namely where the determiner itself, overt or null, does not exhibit a strong ending. As a way of presenting the data, I have decided to arrange them by the complexity (i.e., weight) of their final rhyme, that is, by the number of segments in the nucleus and coda of the final syllable. We will see that the strong-weak alternation or rather the lack thereof in these cases is not a

4.3. *Strong ending is less heavy/complex: /V/ST < /VC/WK*

Finally and perhaps unsurprisingly, when the weak ending is more complex, only the strong ending is grammatical on the second adjective. Again, we find two strong inflections – this time in the dative and genitive feminine and the genitive plural, as illustrated in (17) and (18), and in the nominative and accusative plural, as shown in (19):

- (17) a. frischer süßer Milch
fresh(DAT/GEN.STRONG) sweet(STRONG) milk(FEM)
'fresh sweet milk'
- b. * frischer süßen Milch
fresh(DAT/GEN.STRONG) sweet(WEAK) milk(FEM)
- (18) a. kleiner roter Autos
small(GEN.STRONG) red(STRONG) cars
'small red cars'
- b. * kleiner roten Autos
small(GEN.STRONG) red(WEAK) cars
- (19) a. kleine rote Autos
small(NOM/ACC.STRONG) red(STRONG) cars
'small red cars'
- b. * kleine roten Autos
small(NOM/ACC.STRONG) red(WEAK) cars

To summarize these sets of data, with the one exception discussed in section 3 (cf. (13b)), the weak ending on the second adjective is always ungrammatical, independent of phonological complexity of the final rhyme. As such, the alternation in (13b) is very restricted and should be treated with care. Furthermore, as can easily be verified, generalization II' cannot be correct. Having disproved this hypothetical claim about the generality of the data, we turn to the nature of the alternation in (13b).

5. **Question II: Is this Alternation a Morphological Phenomenon?**

This section is dedicated to the question of how to deal with the data. In other words, we seek to determine what kind of proposal is most likely to be correct for the alternation in (13a-b). Interestingly, unlike Demske, Gallmann, and Müller, Schlenker (1999: 119) reports that some speakers do not allow two identical strong endings in the masculine (and neuter) dative, as illustrated in (20a), but that most speakers accept the weak ending on the second adjective, as shown in (20b). In keeping with the data in section 4.3 and the claims made by the other authors, Schlenker states that this alternation is not possible in any of the other cases, illustrated by him with a feminine example:

- (20) a. ??^{OK} mit gutem rotem Wein
 with good(STRONG) red(STRONG) wine(MASC)
 ‘with good red wine’
 b. mit gutem roten Wein
 with good(STRONG) red(WEAK) wine(MASC)
 c. mit guter roter Sauce
 with good(STRONG) red(STRONG) sauce(FEM)
 ‘with good red sauce’
 d. * mit guter roten Sauce
 with good(STRONG) red(WEAK) sauce(FEM)

In order to account for these data, Schlenker (1999) employs the morphological mechanism of Fission (for details, see Halle and Marantz 1994). In particular, Schlenker (1999: 124) makes the following claims about the relevant inflections:

- (21) a. endings on the determiners are [+Fission]
 b. endings on the adjectives are [-Fission], except for (21c)
 c. the adjectival ending *-em* is [+Fission], which, at least for some speakers, is an optional feature (cf. (20a-b))

To see how this works, let us briefly look at his description of Fission.

Schlenker proposes that sub-trees come with fully specified feature bundles. Lexical elements are merged as terminal nodes and can, depending on their specifications, reduce the feature composition of that sub-tree. In the resultant, impoverished environments, only elements of appropriate (e.g., with fewer) specifications can be merged. Interpreting strong endings as fully specified and weak endings as less specified, a top-down derivation guarantees that the merge of an element with a strong ending marked for Fission will reduce the feature bundle of the sub-tree. This, in turn, allows only elements with a weak or no ending to be merged further down in the tree.

Returning to (21), with determiner endings marked [+Fission], they trigger Fission and Schlenker’s proposal can explain weak endings on adjectives following determiners. With the exception of one case, adjective endings do not trigger such an operation and, thus, they do not cause an alternation. This essentially derives inflectional parallelism with adjectives. However, adjectival *-em*, marked as [+Fission] by stipulation, does result in an alternation. These assumptions, then, account for generalization II and the data in (20).

Some support for this morphological proposal can arguably derived from the fact that failure of Fission triggered by the determiner ending *-em* leads to stronger ungrammaticality (i.e., “*”) than that triggered by the adjectival *-em* (i.e., “??”). This implies that Fission must be category-specific and, considering that this is a morphological operation, this might not be surprising. However, we will see that a morphological account is not the correct way to explain the exceptional data.¹⁰

¹⁰ As mentioned above, one of the conclusions explicitly stated by Schlenker is that syntactic trees must be built from top to bottom. While this is arguably against current standard assumptions, where bottom-up derivations derive syntactic constituency and semantic composition straightforwardly (e.g., S[VO] vs. *[SV]O; D[AN] vs. *[DA]N), the mechanism of Fission can still be employed under bottom-up assumptions if one assumes that determiners raises

Let us step back and briefly review the entire data. Starting with (20c-d), these data are expected from our perspective and exhibit very sharp judgments. Turning to (20a-b), what is surprising about this set is that the expected pattern of two strong endings is marked for some speakers (cf. “??”) and the unexpected pattern is fine for most. In other words, not only are the patterns in (20a-b) “reversed” and thus unexpected, the judgments are also more diverse and less sharp. In fact, we have seen above that there are also other sets of judgments reported in the literature, which are summarized in table 4 below. To be clear, there seem to be three – what I will call – ‘dialects’ for the dative masculine/neuter: dialect 1 is described by Demske (2001), Gallmann (1996, 2004), and Schlenker (1999); dialect 2 is provided by Müller (2002b); dialect 3 is given in Schlenker (1999); dialect 4 does, to the best of my knowledge, not exist, that is, all speakers allow at least one of the two adjectival patterns:¹¹

Table 4: Different Sets of Judgments in the Dative Masculine/Neuter

	Dialect 1 (De., Ga., Schle.)	Dialect 2 (Müller)	Dialect 3 (Schlenker)	Dialect 4
Adj+m Adj+m	√	√	??	??
Adj+m Adj+n	√	?	√	??

While the contrasts in the judgments between the two adjective patterns seem to be fairly subtle in dialects 2 and 3, the very existence of three different dialects should make us pause. Before we proceed, let us point out some serious questions left open by Schlenker’s proposal.

For instance, there is an issue about quantity: why is *–em* the only adjectival ending marked [+Fission] and not, e.g., also plural *–e*: *gute rote(*n) Weine* ‘good red wines’? Furthermore, there is a question about quality: why is it *–em* that has this marking and not, e.g., *–er* instead: *guter rote?(r) Wein*? And most importantly, beside these potential quantitative and qualitative issues, Schlenker’s proposal seems to give up generalization I, according to which the strong endings on determiners and adjectives are not only homonymous but, in fact, identical: rather than one type of strong ending, we now have three: determiner endings, adjectival endings (except *–em*), and the adjectival ending *–em*.¹² In what follows, I argue that this is not a morphological but post-lexical phonological phenomenon.

in a stepwise fashion from a position below adjectives (see Roehrs 2006; in Roehrs in prep., I attempt to combine Fission and determiner movement to account for the strong-weak alternation).

¹¹ Sternefeld (2004: 288) only discusses the pattern “Adj+m Adj+n” and it is not clear to me if he describes dialect 1 or 3. He provides a syntactic account proposing a recursive DP-level.

¹² Interestingly, a few adjectives trigger a strong-weak alternation, schematically similar to the one case discussed in the main text. Consider (ia). However, there is independent evidence that these adjectives are determiner-like in that they can, by themselves, license singular countable nouns. Compare (ia) to (ib):

- (i) a. folgendes neue Beispiel
following(STRONG) new(WEAK) example
‘the following new example’
b. *(dieses) neue Beispiel
this(STRONG) new(WEAK) example
‘this new example’

6. Proposal I: The Alternation is a “Lowest-level” Phenomenon

In order to explain the data summarized in table 4 above, while keeping both generalizations from section 2 intact, I propose a phonological account. Note that strong $-m$ and weak $-n$ are the only co-occurring inflections of the strong-weak alternation that basically share all the phonological features except place of articulation. In view of this fact, I propose the following phonological rule (A = adjective):¹³

$$(22) \quad R_1: \quad m \quad \rightarrow \quad n \quad / \quad [\dots]_A + \text{ə} _____\#$$

In words, rule R_1 applies to certain nasal inflections on adjectives, where R_1 is obligatory for some speakers (cf. “??” in (20a)), optional for others (cf. “OK” in (20a)), and “costly” for yet another group of speakers (cf. “?” in (13b)). This phonological proposal, then, not only explains the restrictedness to $-m$, but also the change to $-n$, which involves a less marked place of articulation, namely a change in place of articulation from labial to (the less marked) coronal.¹⁴ Put differently, this is an alternation involving nasal sounds and as such, this phenomenon is a lower-level, or rather “lowest-level” process. A proposal similar in nature is made in Gallmann (2004: 156-7), who bars sequences of schwa and $-m$ by a phonological constraint in the framework of Optimality Theory. To be clear, then, the weak ending on the second adjective is a strong ending in “disguise” and strong morpho-syntactic conclusions should not be based on (just) these data.

7. Proposal II: Several Mechanisms

If the rule in section 6 were the only mechanism, we would also expect an adjective in $-n$, derived by the free application of the rule, to be followed by an adjective in $-m$ or in $-n$, the latter another application of the rule. Considering (23a-b), this is not the case:

- (23) a. ?? mit starken obergärigem Bier
 with strong(WEAK) top fermented(STRONG) beer
 ‘with strong top fermented beer’
 b. ?? mit starken obergärigen Bier
 with strong(WEAK) top fermented(WEAK) beer

¹³ As pointed out to me by Tracy A. Hall (p.c.), this must be a post-lexical rule as it applies after the insertion of lexical items. With the reference to adjective, (22) is not a proto-typical post-lexical rule. However, another possible instance of this kind of rule is schwa-insertion in German, where, when inflected, adjectives must have a schwa inserted, but typical disyllabic nouns must not:

- (i) a. Das hier ist wirklich ein schöner-*(e)s Haus als das da.
 ‘This here is really a prettier(NEUT) house that that there.’
 b. Ich erinnere mich des Lehrer-*(e)s
 I remember REFL of.the teacher(GEN)
 ‘I remember the teacher.’

(For more detailed discussion of these differences between nouns, adjectives, and verbs, see Wiese 1996: section 4.3; for more general discussion of the interaction between phonology and syntax, see Kaisse 1985.)

¹⁴ Note in this regard that Wiese (1996: 165, 219) formulates rules where coronal is the default value.

Note first that the judgments in (23) contrast with those in (13c-d). Furthermore, as already seen in (20) above, nasal inflections, once again, have less sharp judgments than non-nasal endings. Compare (23) and (24):

- (24) a. * starke obergäriges Bier
 strong(WEAK) top fermented(STRONG) beer
 ‘strong top fermented beer’
 b. * starke obergärige Bier
 strong(WEAK) top fermented(WEAK) beer

Contrasting (20) to (23), it appears, then, as if the strong ending has to come first and that the phonological rule only applies to the second adjective. This, in turn, might imply a proposal involving a certain structural component (and not a phonological rule). Interestingly, nominals with a structure different from garden-variety noun phrases exhibit a similar phenomenon. Consider the indefinite pronoun constructions in (25) (for discussion, see below and especially Leu 2005, Roehrs to appear). However, in this case, it is the (first) adjective that exhibits the alternation:¹⁵

- (25) a. (?) mit jemandem anderem
 with somebody(STRONG) different(STRONG)
 ‘with somebody different’
 b. mit jemandem anderen
 with somebody(STRONG) different(WEAK)

Below I demonstrate that *jemand* ‘somebody’ is not an adjective (see section 8, where also cases like *mit jemanden* / *jemand* are discussed). As might be expected by now, non-nasal endings exhibit sharper judgments:

- (26) a. etwas anderes
 something different(STRONG)
 ‘something different’
 b. * etwas andere
 something different(WEAK)

¹⁵ While a *google*-search has revealed that there is enormous variation here, I have not been able to establish if there are three corresponding dialects in these cases as well and I simply provide my own judgments. If it turns out that speakers group in different ways here, the rule in (22) may have to be refined in its context of application for some speakers.

Note also that cases involving personal pronouns are different: besides the masculine dative, these structures also have variation in the feminine dative (and other morphological cases):

- (i) a. mir { großem / %großen } Esel
 me great(STRONG/WEAK) donkey(MASC)
 ‘me stupid idiot’
 b. mir { %großer / großen } Gans
 me great(STRONG/WEAK) goose(FEM)

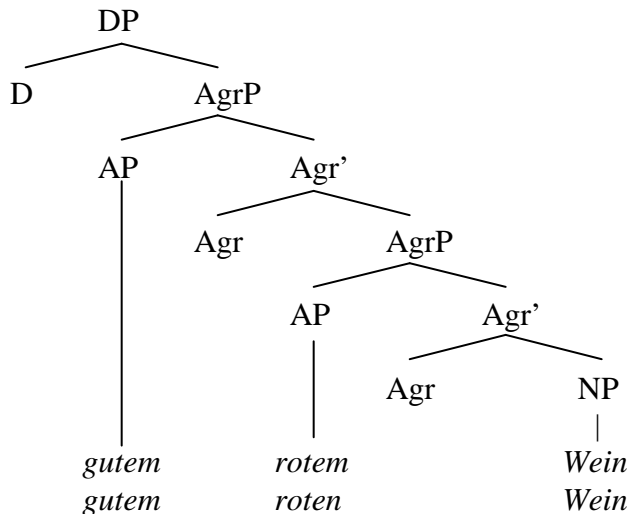
(For an account involving a simple DP, see Roehrs 2005.)

- c. mit etwas anderem
with something different(STRONG)
'with something different'
- d.?*/?? mit etwas anderen
with something different(WEAK)

What these nasal alternations have in common is that they manifest themselves on the second element: either on the second adjective, as seen in garden-variety noun phrases above, or on the (first) adjective, as just seen in indefinite pronoun constructions. Before we proceed, consider the individual structures assumed for garden-variety nouns phrases and indefinite pronoun constructions.

Starting with simple DPs, I follow Abney (1987) in that determiners project their own phrase (DP) and Cinque (1994) in that adjectives are located in a recursive AgrP. The data in (27a-b) are analyzed as in (27c) (% indicates the variation in judgments summarized in table 4 above):

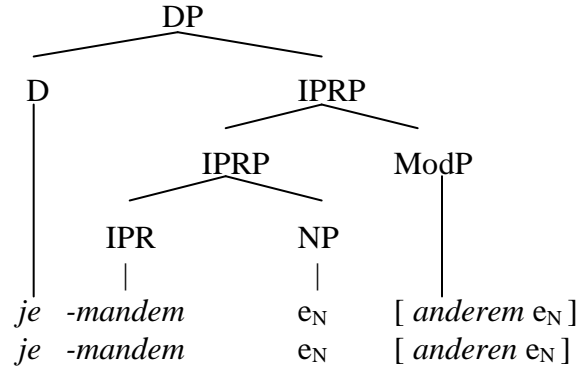
- (27) a. % mit gutem rotem Wein
with good(STRONG) red(STRONG) wine(MASC)
- b. % mit gutem roten Wein
with good(STRONG) red(WEAK) wine(MASC)
- c. *Simple DP*



Unlike run-off-the-mill DPs, indefinite pronoun constructions (at least, of this type; see Roehrs to appear) involve bi-nominal structures where the pronoun and the adjective are in different nominals. Each of these nominals is headed by a null noun (e_N). The pronoun nominal contains an indefinite pronoun restrictor, projecting its own phrase (IPRP) and the adjectival nominal is adjoined to the IPRP by means of a Modifier Phrase (ModP). The data in (28a-b) are analyzed as in (28c):

- (28) a. % mit jemandem anderem
 with somebody(STRONG) different(STRONG)
 b. % mit jemandem anderen
 with somebody(STRONG) different(WEAK)

c. *Indefinite pronoun construction*



If this is on the right track, then we are faced with an (apparent) paradox: although there is a left-to-right asymmetry with regard to the strong-weak alternation (i.e., general precedence of the strong ending), the phenomenon is independent of a common matrix structure as it appears on the second adjective in a simple DP and on the first adjective in a complex DP. In order to avoid over-generation, the application of the phonological rule in (22) must be “constrained”.

I propose that there are two mechanisms accounting for generalization II: in general, the left-to-right distribution of strong and weak inflections follows from a structural proposal that brings about a strong ending on the “highest” appropriate lexical category inside the relevant, perhaps embedded, nominal (e.g., Roehrs 2006, in prep.). This results in two different endings on determiners and adjectives (different lexical categories in the same nominal), in the same endings on co-occurring adjectives (same category in the same nominal), and in the same endings on indefinite pronouns and adjectives (different categories in different sub-nominals). This explains the sharp judgments for non-nasal inflections.

The less sharp judgments for the nasal endings are also due to this structural account but are “masked/weakened” by additional mechanisms, namely the phonological rule in (22). In particular, recalling table 4, dialect 1 employs the rule optionally; in dialect 2 (i.e., *?gutem rotem*), the application of the rule is somewhat “costly”; and dialect 3 (i.e., *??gutem rotem*) has an obligatory rule. Furthermore, the application of the rule is “constrained” by a presumably non-linguistic component (in a narrow sense) that allows for easier processing if the disambiguating strong ending, or disambiguation in general (see below), appears earliest (i.e., left-most) in the noun phrase (e.g., *??guten rotem/rotem*).¹⁶ To be clear, then, the left-to-right asymmetry of generalization II has two overlapping mechanisms, however, of a different kind.¹⁷

¹⁶ Matthias Schlesewsky (p.c.) informs me that this is consonant with work by John Hawkins.

¹⁷ In fact, one might speculate that, considering the transition from a system where strong and weak endings indicated the (in-)definiteness of a noun phrase in earlier varieties of German (Demske 2001) to today’s “economical” strong-weak asymmetry, this processing requirement may have been “grammaticalized” (i.e., “structuralized”) over time. This would mean that this requirement has a long visible history and is still detectable today.

Proposing two types of mechanisms where one of them is “optional”, this analysis not only straightforwardly accounts for the judgments between different types of data (“*” vs. “OK/?/?”) but also for the three dialects within the same type of data (“OK” vs. “?” vs. “/?”). Second and more importantly, generalization II can be left unchanged as (strong) endings on determiners and adjectives are exactly the same and are distributed in a certain, but *non*-inflection-specific, way. In other words, certain instances of these types of inflection do not have to be marked for category and application of a morphological operation as in Schlenker (1999). More generally, we can maintain that the distribution of the strong-weak alternation is dependent on lexical categories. If so, inflectional parallelism can be used as a probe for differences in lexical categories (see Roehrs 2007a).

8. A Nasal Alternation of a Different Kind

As expected, the phonological rule in (22) does not apply to determiners (or numerals or nouns, which do not have *-em* as an inflection anyway):

- (29) a. mit {dem / diesem / einem} Auto
 ‘with the / this / a car’
 b. * mit {den / diesen / einen} Auto
 with the / this / a car
 c. mit ihm
 ‘with him’
 d. * mit ihn
 with him

However, indefinite pronouns such as *jemand* ‘somebody’ do have different forms. To the paradigm in (25) repeated here as (30), we add the other remaining options of the pronoun *jemand* in the dative case. Consider (31). Interestingly enough, although it is the first element in the noun phrase, this pronoun has an *m~n* alternation and there are also some inflectionless instances:

- (30) a. (?) mit jemandem anderem
 with somebody(STRONG) different(STRONG)
 b. mit jemandem anderen
 with somebody(STRONG) different(WEAK)
- (31) a. (?) mit jemanden anderem
 with somebody(WEAK) different(STRONG)
 b. (?) mit jemanden anderen
 with somebody(WEAK) different(WEAK)
 c. mit jemand anderem
 with somebody different(STRONG)
 d. (?) mit jemand anderen
 with somebody different(WEAK)

With the above discussion in mind, the alternation between (30) and (31a-b), on the one hand, and the complete lack of inflection in (31c-d), on the other, are surprising. Turning to the adjectives in (31), note that they still show an alternation despite the fact that the pronoun does not have *-m* as an ending. How do we relate these data to the previous discussion?

Starting with (31c-d), it is clear that the pronoun is of a different lexical category than the adjective as the former, unlike the latter, can appear without any inflection whatsoever. In fact, it is well-known that indefinite pronouns have been undergoing a change in morphology. In view of this fact, I argue that the alternation on the pronoun in (31a-b) vs. (30) is not due to the above phonological rule but to the fact that *jemand* belongs to different morphological paradigms in the contemporary language.

In more detail, Schmidt *et al* (2000: 289) state that *jemand* used to decline like a strong noun. Paul *et al* (1989: 233) observe that, from the 18th century on, *jemand* became inflectionally similar to strong adjectives. With the one exception in the genitive noted above (i.e., adjective: *-n* vs. determiner: *-s*), this inflectional pattern is identical to that of determiners. Interestingly, a *google*-search has revealed that examples with a genitive form are rare and seem to be avoided:

- (32) a. *jemand(e)s Auto*
 ‘somebody’s car’
 b. *aus / in jemanden Auto*
 ‘from / in somebody’s car’

According to my own judgments, the genitive *-s* on the pronoun is still dominating and less marked but genitive *-n* is, to different degrees, possible:

- (33) a. *Ich erinnere mich jemand* ?Netten / *Nettes
 I remember REFL somebody(GEN) nice(“WEAK”/“STRONG”)
 ‘I remember somebody nice.’
 b. *Ich erinnere mich jemanden* ??Netten / ?(?)Nettes
 I remember REFL somebody(GEN) nice(“WEAK”/“STRONG”)
- (34) a. *anstatt jemand* ?Netten / *Nettes
 instead of somebody(GEN) nice(“WEAK”/“STRONG”)
 ‘instead of somebody nice’
 b. *anstatt jemanden* ??Netten / ?Nettes
 instead of somebody(GEN) nice(“WEAK”/“STRONG”)

Interestingly, Demske (2001: pp. 84) reports that *-n* is a fairly old genitive ending for adjectives, starting to spread in the 15th century. In view of the fact that *-n* is, despite its long history, still more marked than *-s*, I assume that *jemand* is a determiner (rather than an adjective). However, considering the fact that *-n* is, with restrictions, possible in the genitive and that it is basically unmarked in the dative, as seen in (31a-b), I propose that *jemand*, or rather the (classifier-like) part of it (cf. (28c)), is in the process of becoming a weak masculine noun, where *-n* is

generalized throughout the non-nominative cases.¹⁸ Consider table 5 for all the contemporary inflectional options:¹⁹

Table 5: Different Contemporary Paradigms of the Indefinite Pronoun *jemand*

	strong noun	(strong) determiner	weak noun
nominative	jemand	jemand (/wer)	jemand
accusative	jemand	jemanden	jemanden
dative	jemand	jemandem	jemanden
genitive	jemand's	jemand(e)s	jemanden

I summarize the main findings.

9. Conclusion

In this paper, I discussed strong-weak alternations of endings in the German noun phrase. I argued that, while this alternation is a regular feature with the combination “definite determiner + adjective”, it is not with two co-occurring adjectives. Demonstrating that there is only one case that shows this property with adjectives, I critiqued Schlenker’s interesting proposal, concluding that he proposes a morphological solution to a phonological problem. I argued for a bipartite proposal, where one of the two mechanisms involves a structural component (Roehrs 2006, in prep.) and the other a phonological rule that is “constrained”, presumably by language-processing factors. Interpreted this way, this nasal alternation with adjectives is a lowest-level phenomenon and strong morpho-syntactic conclusions should not be based on (just) these data. Put differently, nasal inflections in German should be treated with care.

As a consequence of the discussion, we may maintain the generalization that adjectives exhibit inflectional parallelism where the distribution of endings is dependent on lexical category and, more generally, we may conclude that the strong-weak alternation of endings in German is a reflex of several mechanisms.²⁰ Against this background, other alternations are becoming more intriguing: the different endings on indefinite pronouns and the different morphological realizations on pseudo-partitives and *als*-adjuncts (for the latter two, see the appendix below).

¹⁸ One might speculate that the two nasal alternations (the one involving the adjective and the other the pronoun) are, in some way, related. I will not investigate this issue here.

¹⁹ A remark is in order for table 5. The lack of schwa in the genitive form of the strong noun and its optional presence in that of the determiner was assumed on the basis of the facts that disyllabic nouns can not have a schwa before the inflection (cf. footnote 13) but certain determiners, used as “pronominal” elements in a split NP, may have an optional schwa (for some discussion, see Roehrs 2007b):

(i) Mädchens erinnere ich mich kein-(e)s.
girl(GEN) remember I REFL none
‘As for a girl, I don’t remember one.’

²⁰ Something similar is proposed in Roehrs (2006: 229 fn. 30), who makes a distinction between ‘primary’ and ‘secondary’ endings, based on work by Müller (2002a,b), who, in turn, discusses Gallmann (1996).

Appendix: Explaining the Accusative in Certain Pseudo-partitives and *als*-adjuncts

Pseudo-partitives are complex noun phrases where two nominals stand in a certain relation. Schematically, let us represent these constructions as “N1 + N2”, where N1 precedes N2. These nominal combinations have a number of interesting properties in German. Among others, while the entire complex noun phrase can be in one morphological case, for instance, N1 is marked in the accusative in (35), the case on N2 can, with minor variations, be of the entire spectrum available in German (i.e., nominative, accusative, dative or genitive):²¹

- (35) a. (?) Ich komme ohne die drei Liter roter Wein. (nominative)
I come without the three liters red wine
'I am coming without the three liters of red wine.'
b. Ich komme ohne die drei Liter roten Wein. (accusative)
c. ? Ich komme ohne die drei Liter rotem Wein. (dative)
d. (?) Ich komme ohne die drei Liter roten Weines. (genitive)

In view of the fact that case licensing (or, alternatively, assignment, checking, or valuing) is typically very constrained, this variation is surprising and the question that arises is how to explain the different case-markings on N2.

Different case realizations are also familiar from other complex nominals. For instance, Roehrs (to appear) argues that indefinite pronoun constructions such as (36a) exhibit concord. Cases such as (36b) illustrate familiar cases of genitive assignment in the noun phrase. Furthermore, van Riemsdijk (1983: pp. 245) discusses cases where – what is traditionally called – “loose” appositions appear in the dative although the antecedent is of a different case (36c). Similarly, one can observe that “close” appositions appear in the nominative although their antecedent is of a different case (36d). Note that proper names in “close” appositions may be fairly complex:

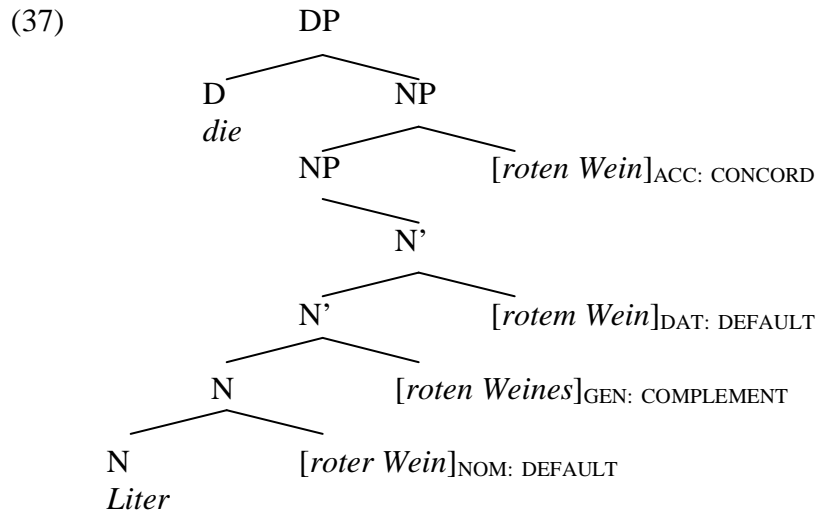
- (36) a. *Concord*
jemand anderer
somebody(MASC.NOM) different(MASC.NOM)
'somebody different'
b. *Genitive*
das Auto meines Freundes
the car of.my friend(GEN)
'my friend's car'
c. *Dative (“loose” apposition)*
des Verfassers, dem Ordinarius für Soziologie
of.the author(GEN), the professor(DAT) for sociology
'(of) the author, the professor of sociology'

²¹ The examples are provided in the masculine, which distinguishes four different forms when a noun is added (cf. table 2). The neuter and plural have three different forms (NOM = ACC) and the feminine has only two (NOM = ACC, DAT = GEN).

- d. *Nominative (“close” apposition)*
 des Indianers Großer Bär
 of.the indian(GEN) Big Bear(NOM)
 ‘(of) the Red Indian Big Bear’

In order to explain all these case possibilities, let us assume that concord in features is brought about by adjunction to a phrase (in this case, NP) and that genitive is assigned to the complement of a noun (cf. the discussion in Roehrs to appear). Furthermore, I assume that “loose” appositions are syntactically represented as adjunction to N’ and “close” appositions are adjoined to N. As adjuncts to X’ and X do not receive case in a straightforward way, I assume that “loose” appositives get the dative case by default and “close” appositives, which are in a different structural constellation, receive nominative case by default. To be clear, I suggest that, depending on the type of (caseless) structural relation, a different default mechanism is “activated”.

Returning to the data in (35), I make parallel assumptions: the accusative in (35b) is brought about by concord with N1, the dative in (35c) is a case of “loose” apposition, genitive in (35d) involves complementation, and the nominative in (35a) involves “close” apposition.²² Consider the four different possibilities:



With this in mind, consider a paradigm where N1 has dative case but the case on N2 varies as above (the data are slightly adapted from Löbel 1989: 145, again with original judgments; cf. also Gallmann 1996: 307):

- (38) a. Wir kommen mit den drei Litern roter Wein. (nominative)
 we come with the three liters red wine
 ‘We are bringing the three liters of red wine.’

²² There is an issue here. There seem to be two differences with regard to the cases in the dative: (i) van Riemsdijk (1983) argues that the dative is the unmarked case for noun phrases in the oblique (i.e., non-structural) cases (note that Leirbukt 1978: 6 concedes some possible exceptions to the generalization involving only oblique cases), and (ii) unlike “loose” appositions, there is no appositional intonation with pseudo-partitives. For the cases under discussion, I will simply assume that the licensing of dative is more general (see also the *als*-adjuncts below).

- b. Wir kommen mit den drei Litern roten Wein. (accusative)
 c. Wir kommen mit den drei Litern rotem Wein. (dative)
 d. Wir kommen mit den drei Litern roten Weines. (genitive)

Basically the same realizations on N2 are possible, when N1 is in the nominative or genitive.²³ What is interesting about all these cases is that the nominative on N2 follows from adjunction to N, the dative on N2 derives from adjunction to N', and the genitive on N2 results from complementation to N. This leaves the accusative to be explained. Although we could account for this in (35b) above by assuming concord with N1, this is not possible for the dative in (38b) and cases in the nominative and genitive.

With the exception of the ending on the adjectives, the dative singular is homophonous with the accusative. Interestingly, these differing inflections on the adjective show nasal sounds: *-m* for the dative and *-n* for the accusative. This is reminiscent of alternations discussed in the first part of the paper. I will boldly make the tentative claim, then, that these instances of accusative case can also be explained by the rule in (22). The preceding discussion is summarized in table 6, where clear cases of the application of this phonological rule are underlined:

Table 6: Independent Case Licensing on N2

	nominative N1	accusative N1	dative N1	genitive N1
nominative N2	Concord, default (close adjunction)	Default (close adjunction)	Default (close adjunction)	Default (close adjunction)
accusative N2	<u>Phonological Rule</u>	Concord, phonological Rule	<u>Phonological Rule</u>	<u>Phonological Rule</u>
dative N2	Default (loose adjunction)	Default (loose adjunction)	Concord, default (loose adjunction)	Default (loose adjunction)
genitive N2	Complement	Complement	Complement	Concord, complement

If this turns out to be tenable, then we have an (at least partial) account for the case variation in German pseudo-partitives. This discussion can be extended to *als*-adjuncts in German.

Gallmann (1996: 307) provides the following paradigm, often witnessed in every-day speech:

- (39) a. die Verhaftung des Generals als dem Drahtzieher der Palastrevolution.
 the arrest of.the general as the(DAT) wire-puller of.the palace revolution
 'the arrest of the general as the mastermind of the Palace revolution'
 b. die Verhaftung des Generals als bekanntem Drahtzieher der Palastrevolution.
 c. die Verhaftung des Generals als bekannten Drahtzieher der Palastrevolution.

Similar to the cases discussed by Riemsdijk (1983), the adjunct is in the dative case (see also Leirbukt 1978). Interestingly, when the determiner is exchanged by an adjective (*bekannt-*

²³ While more empirical work is certainly needed here, an initial investigation has revealed that different cases on N1 do, with minor variation and some degree of instability of judgments, not seem to have an impact on the case-realizations on N2. In other words, independent of the case on N1, all cases on N2 are in principle possible.

‘known’), two endings are possible: *-m* and *-n*. Again, I suggest that *-n* is due to the phonological rule.

Finally, note that, as seen with *jemand* ‘somebody’ of the weak and strong masculine paradigms (cf. (31)), the application of the phonological rule in (38b) and (39c) has nothing to do with the presence of a preceding *-m* but rather with the early morphological disambiguation of the hosting noun phrase, a notion that needs to be made more precise.

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