

Merging verb forms with "ich" to *enchaînement consonantique* in German

Jürgen Trouvain¹, Christine Mooshammer², Malte Belz², Robert Lange²

¹Language Science and Technology, Saarland University, Saarbrücken, Germany

²German Studies and Linguistics, Humboldt-Universität zu Berlin, Germany

trouvain@lst.uni-saarland.de,

christine.mooshammer|malte.belz|robert.lange@hu-berlin.de

Introduction. In German, the personal pronoun of the first person, singular, "ich" ("I") is the second most frequent word in conversations (Brackhane 2022). Being a function word and a word with an ultra-high frequency of occurrence leads to a very high predictability (Jurafsky et al. 2001). Consequently, it can be assumed that "ich" is not located in an accented position. Words in unaccented locations are usually produced with a comparably shorter duration and a higher degree of phonetic reduction (Kohler 1990). However, a further but so far neglected effect is resyllabification. When the preceding word ends with a consonant, and the vowel in "ich" is not deleted, it is very likely that the word sequence "weil ich" ("because I") would be syllabified as "wei.lich" or "wenn ich" to "wen.nich" ("if I" or "when I" – this example is with an ambisyllabic consonant due to the preceding short/lax vowel). This cross-word sandhi effect is known as *enchaînement consonantique* in French (e.g. Oh et al. 2023) but has not yet been described for German to the best of our knowledge.

An optimal test bed for such an investigation are finite verb forms located before the personal pronoun "ich", a word sequence often required in German syntax. Full forms of verbs ending on a consonant are restricted to few verbs such as "kann" ("can") and "schrieb" ("wrote"), most verbs have a schwa in their orthographic form, as in "habe ich". If the schwa is realised, then the sandhi would not occur. However, Kohler (2001) finds that schwa is not realised in more than 68% of cases when followed by a vowel. Similarly, Wesener (1999) reports 76% schwa deletions for verbs. After schwa deletion, the output will be *enchaînement*. Compare e.g. the full form "nehme ich" ("take I") => "neh.me.ich" with the schwa-deleted form "nehm ich" => "neh.mich".

Schwa deletion potentially leads to final devoicing if the then-final consonant is a voiced obstruent: final devoicing (*Auslautverhärtung*) takes place when the voiced obstruent remains in coda position as in the imperative forms "glaub mir" ("believe me") or "sag mal" ("tell me"). However, schwa-deleted verb forms followed by "ich" would undergo *enchaînement* but with an unclear treatment of *Auslautverhärtung* when there is a lenis obstruent at the syllable boundary. Would "sag ich" ("say I") result in [za:kɪç] or in [za:qɪç], i.e. with final devoicing or without? Final devoicing would suggest that no resyllabification has happened. Verbs that have a tense/long vowel before the schwa as in "gehe ich" ("go I") would not undergo a resyllabification after schwa-deletion. Consequently, we can expect different outputs for verbs before "ich": either with or without schwa, and for the forms without schwa: either with resyllabification (and no glottal stop at the syllable boundary) or without resyllabification (and glottal stop). Compare some possible examples with "habe ich" in broad phonetic transcription: (1) [ha:bəʔɪç] vs. (2) [ha:bəɪç] vs. (3) [ha:pʔɪç] vs (4) [ha:biç].

The aim of this study is to explore verbs followed by "ich" in German spontaneous speech of the type "habe ich" (consonant before possibly deleted schwa) or "kann ich" (without underlying schwa). How often can we observe schwa deletion in verb forms before "ich"? How often do verb forms without schwa (both types) before "ich" lead to a subsequent *enchaînement*?

Methods. The inspected data were taken from the Corpus of Non-Native Addressee Register (CoNNAR) (Lüdeling et al 2023; Terada et al. 2023). The corpus was designed to investigate the intra-individual linguistic variation when addressing different interlocutors in free and task-based conversations, here German native speakers or learners of German as a foreign language. The analysed data contain 120 conversations between 20 participants and eight instructed interlocutors whereby only the data of the participants are considered (85,949 cleaned word tokens, i.e. 6.8 hours of articulation time). Data annotation was performed on different tiers, e.g. on the word and the phone level, with all labels manually checked by auditory impression plus visual inspections of the speech signal. For this study, all sequences of finite verbs followed by "ich" were extracted. Usually, a sequence of verb+ich leads to a verb phrase. In few cases, such a sequence could also contain a syntactic boundary. Regarding the segmental realisations we only looked at schwa, glottal stops and resyllabifications at the (potential) sandhi location.

Results. The personal pronoun "ich" occurs 2,200 times in the inspected sub-corpus. In 37.1% of these cases it is preceded by a finite verb. The vast majority of type "habe ich" do not show schwa realisation making them candidates for resyllabification, if a consonant is present (see Figure 1). Virtually **all** of schwa-less verb forms (of both types) do apply resyllabification, i.e. without a glottal stop and without devoicing of then syllable-final consonants, corresponding to example 4 from the type [ha:biç].

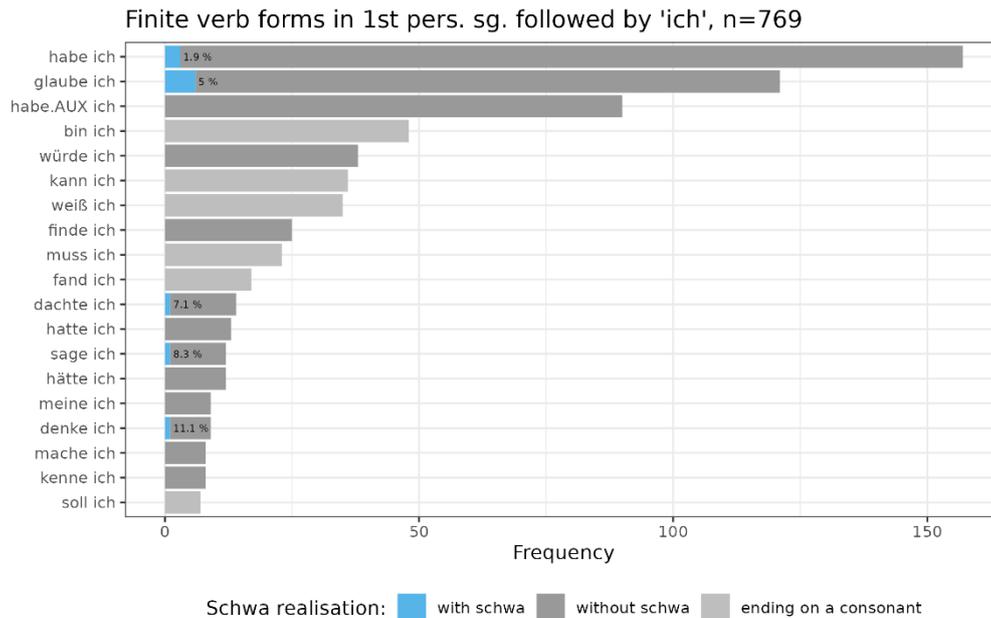


Figure 1: Frequency of inspected finite verb forms plus "ich" with more than 5 occurrences in CoNNAR. Full forms with schwa in blue (n=14), schwa-deleted forms in gray (n=579), no schwa forms in light gray (n=176).

Discussion. As expected, schwa deletion is common practice in realisations of finite verb forms in our data of German spontaneous speech. The option for a resyllabification of the type of *enchaînement* seems to represent the default case. Since this phonological phenomenon has been neglected so far in the phonology of German, the presented finding provokes questions regarding its morpho-phonological analysis and explanation. Schiering (2002) gives an overview of different accounts in German phonology of cliticisation. However, there is no general agreement on how to regard verb forms with deleted schwa and following pronouns with an unreduced vowel such as "ich", some see it as a clitic group, similar to "hat es" => "hat's" ("there's"), others see it as an affix-like structure.

Conclusion. *Enchaînement consonantique* exists in French but also in German, but it was neglected so far as a phonological phenomenon. Interestingly, it is a highly frequent phenomenon, that however occurs in prosodically unaccented locations, so it might be not very prominent in the perception of linguists. Although German belongs to the languages that are better described for connected speech processes than others, there are still phenomena to be described in more detail, and not all of them are linked to fast articulation as the sometimes-used term "allegro rules" imply. Annotated corpora of various speech styles and registers are very helpful in unveiling those spots. Examples of applying this type of research concern language teaching. Since *enchaînement consonantique* also happens in their native language, German learners of French could be made more sensitive to resyllabification effects in French, including *liaison*. Likewise, for learners of German it would be an important illustration of how unaccented passages of fluent speech, i.e. the majority of words, are produced in conversations.

Parts of this research were funded by the Deutsche Forschungsgemeinschaft – SFB 1412, 416591334.

References

- Brackhane, F. (2022). Beobachtungen zu Frequenz und Funktionen von *ja* in deutscher Spontansprache. *Deutsche Sprache*, 4/2022, pp. 335–363.
- Jurafsky, D., Bell, A., Gregory, M. & Raymond, W. (2001). Probabilistic relations between words: Evidence from reduction in lexical production, in J. Bybee & P. Hopper (Eds.), *Frequency and the emergence of linguistic structure*. Amsterdam: John Benjamins, 229–254.
- Kohler, K. J. (1990). Segmental reduction in connected speech in German: Phonological facts and phonetic explanations. In W. Hardcastle & A. Marchal (Eds.), *Speech production and speech modelling*. Dordrecht: Kluwer Academic. 69–92.
- Kohler, K. J., Rodgers, J. E. J. (2001). Schwa deletion in German read and spontaneous speech. In: *Arbeitsberichte des Instituts für Phonetik und digitale Sprachverarbeitung der Universität Kiel (AIPUK)* 35. pp. 97–123.
- Lüdeling, A., Mooshammer, Ch., Lange, R., Sell, B. M., & Terada, M. (2023). Corpus of Non-Native Addressee Register (CoNNAR). Version 1. <https://rs.cms.hu-berlin.de/phon/pages/home.php>
- Oh, S., Fougeron, C., Buech, Ph., Hermes, A. (2023). CV coordination: the case of *enchaînement* and *liaison* in French. *ICPhS Prague*, pp. 1137–1141.
- Schiering, R. (2002). Klitisierung von Pronomina und Artikelformen. Eine empirische Untersuchung am Beispiel des Ruhrdeutschen. *Arbeitspapier 44*, Institut für Sprachwissenschaft, Universität zu Köln.
- Terada, M., Sell, B. M., Lange, R., Müller, M., & Belz, M. (2023). Documentation and annotation guidelines of CoNNAR Version 1. *Register Aspects of Language in Situation (REALIS)*. 2(6), pp. 1–32, doi=<https://doi.org/10.18452/27898>.
- Wesener, Th. (1999). The phonetics of function words in German spontaneous speech. *Arbeitsberichte des Instituts für Phonetik und digitale Sprachverarbeitung der Universität Kiel (AIPUK)* 34, pp. 323–373.