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An emerging future infinitive in present day German?

Abstract: This paper puts forward the hypothesis that there is a future infinitive evolving in present day German and addresses the theoretical consequences that this might have. Section 1 gives the basic definitions as well as some introductory examples. Section 2 presents evidence in favour of the hypothesis, and possible objections are considered in section 3. Finally, section 4 focusses on more theoretical implications.

Keywords: temporal relations, nonfiniteness, corpora, werden, epistemic modality

1 Introduction[1]

One of the most intensively discussed structures in German linguistics is [*werden* + infinitive], literally ['become' + infinitive]. Usually the discussion centres upon the problem of whether this structure expresses a future tense or a mood in sentences like (1).[2]

(1) (constructed example)

   Er   wird   schlaf-en.

   he   become   sleep-INF
   'He will be sleeping' or 'Probably, he is sleeping (right now)'

This paper, however, asks a different question, i.e., is there an infinitive of [*werden* + infinitive]? Such an infinitive would take the form [*werden*$_{INF}$ + infinitive] and thus appear very different from the pure present infinitive without *werden*. Therefore, I am not concerned with the original discussion and it is only for brevity that I will call [*werden* + infinitive] a *future* and, accordingly, its putative infinitival version a *future infinitive*.

My observations and reflections about this structure are intended as a first investigation into the topic, based mainly on two pilot studies as well as native speaker intuitions. It is hoped that the preliminary results will inspire future research.

Instances of what might count as a future infinitive are provided by (2) and (3).

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[1] This paper is based on a talk held at the FGLS meeting in Cambridge, January, 2014. Many thanks to the audience for comments and criticism.
[2] E.g., Saltveit 1960 and 1962, Vater 1975 and Vater 1997, Janssen 1989, Askedal 1991, Leiss 1992:Ch. 5, Fritz 2000, Welke 2005: Ch. 9, Hacke 2009.

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(2) *s sind die letzten Musterbeispiele realsozialistischer Trostlosigkeit, von denen man bald*

    sag-en   werden   kann,

    say-INF   FUTAUX.INF?   can.3SG
    dass das China des Jangtse so einmal ausgesehen hat
    'These are the last paradigm examples of real-socialistic drabness, predestined to exemplify what Yangtze China used to look like.'[3]
    (http://www.faz.net/themenarchiv/2.1211/reise/jangtse-in-der-ader-fliesst-das-leben-und-der-tod-1545972.html, May 17th, 2001 [last checked December 12th, 2013])

(3) *Dass man bei Niederschlägen nicht*

    fahr-en   werden   dürfe,

    drive-INF   FUTAUX.INF?   may.3SG.QUOT
    habe Züscher schon bei der Inbetriebnahme gewusst.
    'That driving is not allowed in the case of rainfall was known to Züscher already at initial operation, he says.'[4]
    (Rhein-Zeitung, August 17th, 2006)

In both of these examples, [*werden* +infinitive] is embedded under a finite verb (*kann* and *dürfe*, respectively). As there can be only one finite verb per clause, *werden* itself cannot be finite but must be nonfinite. Hence what is manifested here is [*werden*$_{INF}$ + infinitive], i.e. the future infinitive as defined above. However, native speakers do not judge these examples as grammatical unanimously, at least in my experience as one of these native speakers. Moreover, according to the literature there is no future infinitive in German. Grammars usually do not provide for this category (e.g., Heidolph et al. 1981:567, Zifonun et al. 1997:1686, Helbig and Buscha 2001: 95–96, Eisenberg 2013:192) or go as far as to deny its existence (Erben 1980:122, Hentschel and Weydt 2013: 128).[5] Interestingly, the future infinitive is precisely not the kind of construction that grammars generally tend to overlook: it is far from being considered sub-standard by the native speakers I asked, rather it is perceived – by those who accept it – as "posh", on a par with, for example, five-part verbal clusters. The future infinitive's absence from grammars is, therefore, quite surprising. Also within the more specialised literature it is sometimes implicitly suggested (Gelhaus 1975:187) or explicitly claimed (Heine 1995:120–121) that such a category does not exist. The following three exceptions, however, have been noted. First, the future infinitive occurs in an earlier edition of the DUDEN grammar (Eisenberg and Klosa 1998:189). Second, Abraham (2004:116) includes in his overview of infinitival forms in German and Latin a "non-finite [...] future perfect" as an aspectual category (for criticism see Hentschel 2009:180–181). Third, Rothstein (2012, 2013a, 2013b) puts forward evidence of double futures, e.g. *verändern* ('change') *werden wird* (Rothstein 2012:29). In double futures, a finite form of *werden* embeds [*werden*$_{INF}$ + infinitive], i.e., the future infinitive. Thus, Rothstein's evidence of double futures is at the same time evidence of the future infinitive.

    The existence of examples like (2) and (3), viewed against the background of native speaker judgements and the literature, suggests the following hypothesis: there is a future infinitive in present day German; however, it is only just emerging[6]. In the following sections, initial evidence in favour of this hypothesis will be gathered and its theoretical implications will be considered briefly.

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3 Translations are mine (T.R.). For abbreviations used in glosses see the abbreviations section.
4 It is clear from context that Züscher is citing himself here.
5 Griesbach, Schulz (1962:45) do mention an "Infinitiv Futur", however, this term does not refer to an infinitival version of [*werden* + infinitive] but to future readings of the present infinitive. Consequently, later Griesbach (1986:362/366) conflates future and nonfuture readings of the present infinitive into one and the same category, which he dubs "nicht abgeschlossen".
6 I assume here that the grammars cited above have not been overlooking the phenomenon for decennia.

2 Evidence

2.1 Data

2.1.1 Methodology[7]

In order to assess if and when the future infinitive occurs, I conducted two pilot corpus studies, one of them using COSMAS II[8] and the other using WebCorp Live[9]. The reason for choosing precisely these tools was the size of the corpora that they search; assuming that the phenomenon under scrutiny is rather rare, large corpora were needed. Accordingly, the corpus covered by COSMAS II is the DeReKO[10], which is generally considered the largest corpus of written German, and WebCorp Live even searches the web. In both studies I looked for the following patterns:

    (a)   infinitive *werden* finite verb, e.g., *spielen* ('play') *werden kann*
    (b)   infinitive *zu werden*, e.g., *spielen* ('play') *zu werden*

Both patterns represent the future infinitive as defined above: [*werden*$_{INF}$ + infinitive]. Pattern (a) was already presented in connection with the introductory examples (2) and (3), pattern (b) is merely a syntactic variant of it with the particle *zu* (Zifonun et al. 1997:2159). Admittedly, the first pattern is restricted to subordinate clauses and main clauses with VP-fronting.[11] However, searching for main clauses of any kind would have been too time-consuming. For example, the COSMAS query

    MORPH(V -INF -PCP) /+w1:5,s0 MORPH(V INF) werden

might indeed find possible instances of the future infinitive like (4).

(4) (constructed example)
    Er kann morgen

    spiel-en   *werden.*

    play-INF   FUTAUX.INF?
    'He will be able to play tomorrow.'

In total, the query above yields 17,444 hits (case-sensitive search) within the corpus "TAGGED-C-öffentlich", including false hits like (5).

(5) *Ende Oktober*

    soll   *es der Lufthansa baureif*   *übergeben*   *werden*

    is scheduled to.3SG   commit.PSTPTCP   PASSAUX.INF
    'At the end of October it [a parcel of land] is scheduled to be committed to the Lufthansa, suitable for building.'
    (Braunschweiger Zeitung, September 9th, 2005)

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7 Part of the methodology is borrowed from Rothstein 2012, 2013a.

8 https://cosmas2.ids-mannheim.de/cosmas2-web/menu.registration.login.do

9 http://www.webcorp.org.uk/live/

10 "DeReKo" is an abbreviation for *Deutsches Referenzkorpus* 'German reference corpus'. As to subcorpora, I chose "W-öffentlich" and "TAGGED-C-öffentlich".

The edition used for this paper is the most recent one at the time of writing, i.e. edition 2013-II for the corpus "W-öffentlich" and release 2010-II for the corpus "TAGGED-C-öffentlich".

11 Additionally, the pattern is matched by instances that cross the clause border. Though, these are not relevant for the present study.

Thus, the 17,444 hits all would have to be filtered manually. To be sure, false hits also occur when searching for patterns (a) and (b) (for discussion, see below). Even so, the respective queries yield considerably less results so that manual filtering is feasible.

In more detail, POS tags were used if available (i.e. within the COSMAS corpus "TAGGED-C-öffentlich"). If not, I followed different strategies for the infinitive and the finite verb. For the infinitive, 43 of the most frequent verbs according to Ruoff (1981:440) were used.[12] For the finite verb, I used all forms of the six canonical modals as well as of *werden*. In case of differences between old and new orthography I included both spelling variants, e.g. *mußte* besides *musste* ('had to'). As stated above, all results had to be filtered manually, primarily in order to eliminate hits containing *werden* not as a future auxiliary but as a passive auxiliary. This is possible where the past participle is homonymous with the infinitive, e.g. überfahren zu werden ('to get knocked down').

2.1.2 Results and dicussion

The results from the two studies, Rothstein's potential examples for the double future (Rothstein 2012:5–30), and some chance finds make a total of 1,198 possible instances of the future infinitive, representing the two patterns above ((a)] and (b)])[13]. The sheer number suggests that the future infinitive does exist.

However, one might object that it is also possible to collect 1,198 examples for obviously ungrammatical strings. So the 1,198 potential examples of the future infinitive might just as well be 1,198 mistakes and thus not provide any evidence of a new form. To test this objection, I conducted a COSMAS search for the pattern [infinitive – finite verb – finite verb], which is clearly ungrammatical. More concretely, I searched the COSMAS corpus "TAGGED-C-öffentlich" for

[(MORPH(V INF) %w0:0 („,“ ODER „.“ ODER „;“ ODER „:“ ODER \? ODER „!“ ODER „)“)) (MORPH(V -INF -PCP) %w0:0 („,“ ODER „.“ ODER “;” ODER “:” ODER \? ODER “!” ODER “)”)) MORPH(V -INF -PCP)].

This search yields 2,466 examples. However, according to a random sample of 201 results, the majority of these are false hits caused by, among other things, problems in POS recognition. (6) is one of them.

(6) *Reto Riedi, Gesamtleiter des ABA, sagt, es komme nur selten vor, dass jemand der Institution*

    sein   *Vermögen*   *hinterlasse.*

    his (homonymous with *sein* 'be.INF')   fortune   bequeath.3SG.QUOT
    'Reto Riedi, head of ABA, says that only rarely somebody bequeaths his fortune to the institution.'
    (St. Galler Tagblatt, February 21st, 2009)

Still, the random sample of 201 results does contain five true hits, e.g. (7).

(7) *Der 15-jährige Philipp Nußdorfer aus Pressbaum ist nach einem operativen Eingriff, der seine Rückratverkrümmung* [sic]

    korrigier-en   *hätte*   *solle,*

    correct-INF   PERFAUX.IRR   should. 3SG.QUOT
    an den Rollstuhl gefesselt.
    '15-year-old Philipp Nußdorfer from Pressbaum is confined to a wheelchair after a surgery that was supposed to cure a curvature of the spine.' (probably intended meaning)
    (Niederösterreichische Nachrichten, November, 13th, 2007)

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12 This is Ruoff's first column minus homonyms and *fort*(-*gehen*) '(go) away'. The latter was excluded because I was only interested in plain verbs, not in doubtful cases like in *Ich muss fort*, literally 'I must away'.

13 Meta linguistic instances as well as obvious mistakes are not counted here. False hits were also excluded. Still, the remaining 1,198 instances are merely "possible" ones because some of them are amenable to another analysis (see section 3.2 below) and, strictly speaking, any of them might constitute a nonobvious mistake.

Thus, instances of an obviously ungrammatical string can be found, too; presumably caused by orthographical error. For example, in (7) above the writer must have left out an *-n* after *solle*, which would have turned the quotative into the infinitive *sollen* so that the whole string would have been grammatical. In considering this, what evidence is there to suggest that the 1,198 instances of the future infinitive are not similar errors also? The main piece of evidence is that there is an important difference between instances like (7) on the one hand and instances like (2) on the other: the former, displaying two finite verbs in one clause, will not be judged grammatical by any native speaker, the latter at least by some (see above, section 2.1). Therefore, corpus studies cannot prove the existence of the future infinitive. However, they provide strong indications in favour of it. Furthermore, they make available to the researcher a wealth of material which may be used for qualitative studies or for designing questionnaires.

In order to strengthen the indications and to get more material that can be qualitatively and quantitatively analysed, the two pilot studies need to be followed by a large-scale corpus study. This new study should cover material from the new release of the DeReKo (2014-II), supplemented by COW2014[14]. In addition, it is important to know if there is a medium-related bias in the data, so corpora of spoken language need to be spot-checked at least, e.g. the DGD.[15,16] Also, WebCorp Live proved useful within the pilot studies and lends itself as another rich source for a larger study. However, if any quantitative claims are to be made, results from WebCorp Live have to be ignored, since the size of this corpus, i.e. of the web, is inherently unstable.[17]

Even in considering the pilot studies only, there is suggested evidence that the patterns searched for are considered grammatical by a considerable range of speakers: entirely new forms that are not yet accepted by the majority of speakers are generally believed to occur in only a few registers first; however, the possible instances of the future infinitive (already) cover a large array of genres and speakers. For example, they are found in casual discussions in online forums as well as in newspaper articles. Thus, even the pilot studies suggest some degree of acceptability for the future infinitive.

2.2 Correct predictions

The hypothesis of an emerging future infinitive, taken by itself, makes two predictions. First, if German does have a future infinitive, then this infinitive is expected to occur in two forms: on the one hand as a bare infinitive and on the other hand as an infinitive with the particle *zu* (cf. patterns (a) and (b)). Second, if German does have a future infinitive, then this infinitive is expected to occur embedded under finite forms of *werden* itself, therefore, so called double futures are predicted. Both predictions are borne out in my corpus data, as shown below.

The construction [infinitive *zu werden*] occurs 13 times within the DeReKo, some examples of which are given in (8)–(10).

(8) *Allen für dieses spannende und weitreichende Reformprojekt Engagierten danke ich als Dekan für die geleistete Arbeit – und ich verbinde den Dank mit dem Versprechen, das Meine*
tun   zu   werden,
do.INF   INFPART   FUTAUX.INF?
um die zügige weitere Behandlung der Studienreform in den jeweiligen Universitätsgremien bzw. im Ministerium sicherzustellen.
'As the dean, I am thanking all those people who committed themselves to this exciting and far-reaching reform project, and I would like to add the promise to do my part in guaranteeing that further processing of the academic reform will proceed quickly within the respective university panels as well as within the ministry.'
(http://www.fb06.uni-mainz.de/inst/ik/germanistik/kelletat/17.html, 1999 [last checked January 30th, 2014])

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14 "COW" is an abbreviation for *COrpora from the Web*, see http://hpsg.fu-berlin.de/cow/?action=corpora.
15 http://dgd.ids-mannheim.de:8080/dgd/pragdb.dgd_extern.welcome
16 For diachronic corpora see below, section 3.3.
17 An alternative would be to enter very general queries and create one's own corpus from the results. However, this seems futile work given the existence of COW.

(9) *Dem widersprachen die Spieler und betonten, auch ohne Geld für ihr Land*

   spiel-en   *zu*   *werden.*

   play-INF   INFPART   FUTAUX.INF?
'The players objected to this and stressed that they would play for their country even without remuneration.'
(Nürnberger Zeitung, June 16th, 2006)

(10) *Endlich ein Duell, in das die SG-Frauen mal nicht in der Gewissheit gehen müssen, am Ende als Verlierer vom Platz*

geh-en   *zu*   *werden.*

go-INF   INFPART   FUTAUX.INF?
'Finally, a match, which the players from the SG do not have to enter knowing that they will lose in the end.'
(Braunschweiger Zeitung, February 11th, 2012)

Double futures occur 12 times within the DeReKo, some examples of which are given in (11)–(13).

(11) *Die Absicht, die Identität von Fläsch als Weinbaudorf zu erhalten, zu gestalten und qualitätsvoll weiterzuentwickeln, bestimmt deshalb die gesamte Ortsplanungsvorlage, über die Anfang Juli die Gemeindeversammlung*

entscheid-en   *werden*   *wird.*

decide-INF   FUTAUX.INF?   FUTAUX.3SG
'So the intention to preserve, shape and cultivate the identity of Fläsch as a wine-growing village determines the whole municipal strategy template, on which the municipal assembly will decide at the beginning of July.'
(Die Südostschweiz, June 20th, 2007, see also Rothstein 2012:27)

(12) *Minister Söder rechnet dem Bericht zufolge damit, dass der staatliche Beauftragte sich weniger um Behandlungsfehler*

   kümmer-n   *werden*   *wird,*

   care-INF   FUTAUX.INF?   FUTAUX.3SG
als vielmehr um strittige Abrechnungsfragen mit den Krankenkassen.
'According to the report, Minister Söder expects that the provincial commissary will attend not so much to medical errors as to disagreements with public health funds about accounting.'
(Nürnberger Nachrichten, August 21st, 2009, see also Rothstein 2012:26)

(13) *Nach einer Studie der Deutschen Shell ist zu erwarten, dass im Jahre 2050 etwa 50 Prozent der Weltenergieerzeugung aus erneuerbaren Quellen*

komm-en   *werden*   *wird,*

come-INF   FUTAUX.INF?   FUTAUX.3SG
davon wiederum werden 50 Prozent voraussichtlich in Wasserstoff umgewandelt werden, um zum Verbraucher zu kommen.
'According to a study by Shell Germany, it is to be expected that in 2050 about 50 percent of all energy produced worldwide will come from sustainable sources; of this amount, in turn, 50 percent will be

converted into hydrogen in order to get to the consumer.'[18]
(http://muschin.blog.de/2011/09/20/strom-wasserstoff-guenstig-klaeranlage-11881518/,   2011   [last checked March 10th, 2014], see also Rothstein 2012:7)

3 Potential objections

3.1 Possibly incorrect predictions

If there is a future infinitive in present day German, then native speakers are expected to judge examples like (2)–(4) and (8)–(13) favourably. However, as already mentioned in the introduction, judgements vary. Moreover, the constructed examples (14) and (15) below feel ungrammatical, even for speakers such as myself who tend to accept sentences like (2)–(4) and (8)–(13). This is even more surprising as the ungrammatical examples do not differ structurally from the (partly) grammatical ones and as the pilot studies did not reveal any clustering around certain lexemes.

(14) (constructed example)
  *... *dass er*

  arbeit-en   *werden*   *soll.*

  work-INF   FUTAUX.INF?   should.3SG
  '... that he should work (the working is in the future).'

(15) (constructed example)
  *... *dass er jemanden*

  arbeit-en   *werden*   *lässt.*

  work-INF   FUTAUX.INF?   let.3SG
  '... that he lets/has somebody work (the working is in the future).'

These data would seem to prove my hypothesis wrong. Strictly speaking, however, the hypothesis does not state that the future infinitive is a well-established category in present day German, all instances of which are equally grammatical. It is rather claimed that the future infinitive is currently only emerging. Thus, varying judgements and even (as yet) ungrammatical instances like (14) and (15) are exactly what one would expect. In other words, the data above are still compatible with the hypothesis.

3.2 Alternative analyses

In order to confirm the hypothesis of an emerging future infinitive in present day German, it is essential to ensure that the pertaining forms cannot be analysed as anything other than infinitival versions of [*werden* + infinitive]. I assume that there is only one alternative analysis that is a plausible explanation for these forms. In the rest of this section I will present this analysis and show why it is not appropriate.
  Consider (16), again a constructed example (its possible translations will be given in (17) and (18), respectively):

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18 The examples of double futures do not include a future infinitive with *zu*. The reason is that my database does not contain any. Also a Google search for "*en werden zu werden" does not yield any results. However, such examples must exist (Rothstein, p.c.), and for the purposes of this paper, I assume that they do.

(16) *... dass sie gehen werden müssen.*

The verbal complex in this clause might indeed include an instance of the future infinitive, provided (16) is analysed in terms of (17).

(17) (constructed example)

    ... dass sie

    geh-en   werden   müssen.

    go-INF   FUTAUX.INF   must.3PL
    '... that they have to go (the going is in the future).'

However, (16) is also amenable to an analysis in terms of (18), which does not include the future infinitive.

(18) (constructed example)

    ... dass sie

    geh-en   werden   müssen.

    go-INF   FUTAUX.3PL   must.INF
    '... that they will have to go.'

In fact, there is nothing wrong with (18) as an analysis of (16). In fact, (18) is an interesting analysis because it includes a type of linear order that occurs in colloquial and dialectal varieties only (Sapp 2011:111–112). It could therefore be that all possible instances of the future infinitive are actually instances of this linear order, stemming (perhaps latently) from the respective varieties. This is conceivable, provided that *werden* can be interpreted as the finite verb. In (16) it can, since *müssen* does not necessarily claim this part: *müssen* is homonymous between INF, 1PL, 2PL FORMAL and 3PL. Yet, in a range of other examples there is an unambiguously finite verb present, for example (2) and (3). Hence, the alternative analysis, according to which *werden* is the finite verb, only works for a limited number of examples. This means that the remaining examples still have to be accounted for by assuming a future infinitive. Therefore it is more parsimonious to analyse all examples by means of the future infinitive from the outset.[19]

    Still, the structure shown in (18) might have been serving as a bridging context for the future infinitive. This is a plausible scenario in that the structures of (17) and (18) also appear to be synchronically related by movement and inversion (Wurmbrand 2004:65).[20] However, I will not pursue this hypothesis any further here.

3.3 Is this construction new?

There is one part of the hypothesis of an emerging future infinitive that I have been scarcely defending so far: the alleged recent nature of the future infinitive. The database does contain four instances from before 1990, see (19)–(22) below.

(19) *Das sind die neuen Technologien im Bereich der Informationstechnologie, Mikroelektronik. Fachleute sagen immer wieder, daß dieser Bereich unser Leben*

    veränder-n   werden   wird,

    change-INF   FUTAUX.INF   FUTAUX.3SG

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19 This way, true instances of the special type of linear order will be counted as future infinitives occasionally. However, I assume that this is the minority of cases, which may be ignored. Consequently, in the rest of this paper I will omit the question mark after futaux in the glosses.

20 Incidentally, unlike Wurmbrand (2004:57–58/68–70) I assume that *werden* is virtually the same in Austrian German, Swiss German and German German.

wie keine Technologie es jemals zuvor getan hat.
'These are the new technologies in the field of IT, microelectronics. Experts keep saying that this field is going to change our lives like no other technology ever before.'
(Die Zeit, January 18th, 1985; see also Rothstein 2012:29)

(20) *Diese Verhältnisse haben einen englischen Währungspolitiker, Keynes, veranlaßt, die Meinung auszusprechen, daß die Goldwährung nicht mehr als eine Währung*

angesehen	*werden*	*werden*	*könne*
regard.PSTPTCP	PASSAUX.INF	FUTAUX.INF	can.3SG.QUOT

die von den Einflüssen der Regierungen unabhängig sei.
'This situation prompted an English monetary politician, Keynes, to express the opinion that one will not be able to regard the gold standard as a currency that is independent of influences from governments.'
(Mitteilungen des Deutschen Hauptverbandes der Industrie, March 20th, 1924)

(21) *Als Reizinstrument wird ein geeichtes Reizhaar benutzt, mit dessen Hilfe die Richtung des „Abtriebs" des Otolithen künstlich*

geändert	*werden*	*werden*	*kann.*
change.PSTPTCP	PASSAUX.INF	FUTAUX.INF	can.3SG

'As a stimulus, a calibrated hair is used, by means of which one can artificially change the direction of the otolith's "downforce".'[21]
(Ulrich, Hans. 1935. Die Funktion der Otolithen, geprüft durch direkte mechanische Beeinflussung des Utriculusotolithen am lebenden Hecht. *Pflüger's Archiv für die gesamte Physiologie des Menschen und der* Tiere 235 (1), pp. 545–553; page cited: 553.)

(22) *Man geht nämlich von dem empfundenen Schmerz, selbst wann er körperlich ist, über zu einer bloßen Vorstellung desselben, und findet dann seinen eigenen Zustand so bemitleidenswerth, daß wenn ein Andrer der Dulder wäre, man voller Mitleid und Liebe ihm*

helf-en	*zu*	*werden*
help-INF	INFPART	FUTAUX.INF

fest und aufrichtig überzeugt ist: [...]
'The reason is this: the pain experienced, even if it is physical, changes to a mere idea of itself, and then one considers one's own state so pitiful that one is firmly convinced that if someone else was the sufferer, one would help him full of sympathy and love.'
(Schopenhauer, 1819:542)

These examples seem to be too early to count as parts of present day German, at least if one prefers a quite narrow notion of this period.[22] However, (19), (20), and (21) can still be accounted for: the first might be a forerunner of the present development and the latter two look like orthographical errors, displaying a doubling of *werden*. However, (22) presents a serious problem. It is definitely too old to be a forerunner and it is not an obvious mistake in writing, either. Moreover, (22) remains unchanged in the second, revised edition from 1844 (:425) although the lines must have been checked, as witnessed by an added comma in front of "wenn".

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21 Judging from context, this is about a structure in the inner ear of a fish.
22 That is to say, roughly the last 25 years up to now, which is a narrower period than usually assumed (see Roelcke 1998:804–811) but seems to be closer to an ordinary understanding of "present day German".

The problem that is presented by (22) can only be handled by searching historical corpora, too, for the future infinitive (e.g. DTA[23], GermanC[24]). Either this search will reveal a substantial number of additional instances – or (22) will remain the only early example that is to be taken serious. In the former case, the hypothesis of an emerging future infinitive would have to be modified accordingly. In the latter case, it seems safe to assume that (22) is a singular case, which does not affect the hypothesis, provided that this hypothesis, as to its chronological part, is understood as no more than a very strong tendency.[25,26]

A first indication that the construction is indeed new comes from the *Historisches Korpus* provided by COSMAS II. Searching the corpus "HIST-öffentlich" for the pertaining patterns (filled with the most frequent lexical verb and the most frequent modal from Ruoff's list [1981:440]) does not yield any results. More concretely, I conducted the following queries:

> sagen werden (muß ODER mußt ODER müssen ODER müßt ODER mußte ODER mußtest ODER mußten ODER mußtet ODER müsse ODER müssest ODER müsset ODER müßte ODER müßtest ODER müßte ODER müßten ODER müßtet)

and

> sagen zu werden.

However, an indication contrary to a smooth and steady development of a future infinitive comes from the pilot study, i.e. from ordering the DeReKo results chronologically. Unfortunately, no clear trend is discernible here, as shown by Figure 1 of the corpus "W-öffentlich". Here the years are displayed along the x-axis, whereas the y-axis displays a number resulting from the following computation: for each year, the number of occurrences was divided by the year's number of words in the corpus, which had been multiplied by 10^{-8} before for convenience.

In defence of the hypothesis, however, it should be pointed out that it does not necessarily claim a steady development. Still, the picture would be clearer if the large-scale corpus study envisaged above (2.1) could show a steadier expansion – which is quite possible since the higher number of instances will level out random effects.

Additionally, as mentioned above, a comprehensive diachronic corpus study is strongly required in order to test the hypothesis of an emerging future infinitive in present day German. As a side note, this hypothesis does not by any means state that the alleged development will continue in the future. It may be a short-lived phenomenon similar to the use of the modals *sollen* ('should') and *wollen* ('want to') for future meaning in older stages of German (Wurzel 1996:503, Kotin 2003:166).

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23 http://www.deutschestextarchiv.de/
24 http://www.llc.manchester.ac.uk/research/projects/germanc/. Unfortunately, historical corpora do not span a range as large as contemporary corpora and spoken material is unavailable.
25 Please note that the assumption above, i.e. that absence from corpora implies nonexistence, is really only an assumption.
26 Incidentally, it is also possible that (22) represents an idiolectal feature of Schopenhauer's texts. In any case, the work cited here contains another instance of the future infinitive, not found by my original search (see section 2.1):
Darum also erfordert die erste Lektüre, wie gesagt, Geduld, aus der Zuversicht geschöpft, bei der zweiten Vieles oder Alles in ganz anderm Lichte

erblick-en   zu   werden.
spot-INF   INFPART   FUTAUX.INF
'Therefore, the first read demands, as mentioned earlier, some patience, drawn from the confidence that in the second one many things, or all, will appear in a completely different light.' (Schopenhauer 1819: viii; 1844:ix)
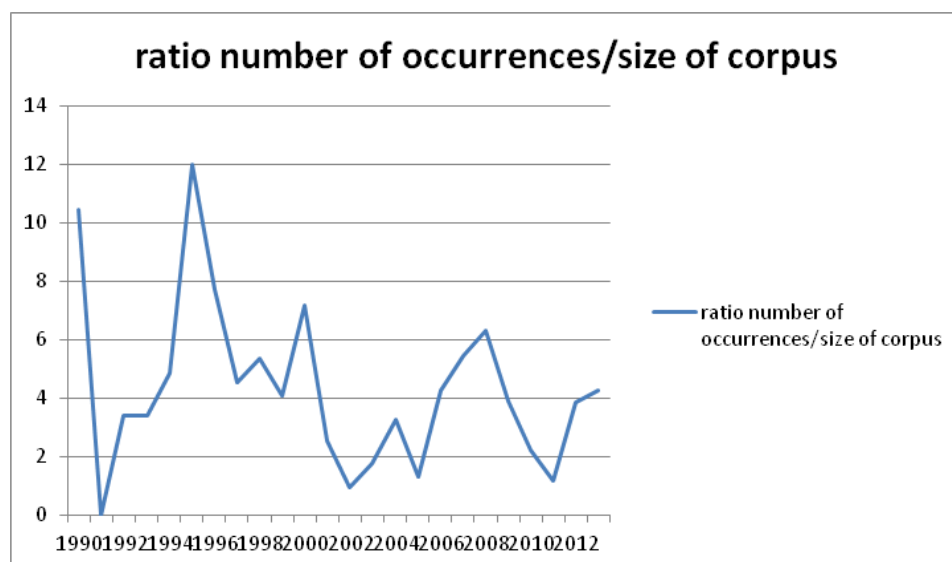
Figure 1: Development within the corpus "W-öffentlich"

4 Theoretical implications

4.1 *Werden* not a modal

Some of those linguists who consider [*werden* + infinitive] a mood (i.e., Vater 1975 and followers[27]) not only think of the whole construction as an expression of modality but also categorise *werden* itself as an epistemic modal, most prominently Vater (1975) and Janssen (1989:79). Epistemic modals in German, however, do not appear to form infinitives (Kiss 2005:118, see also Leiss 2012:43). If this is the case, and if the strict modalists are correct then it is to be expected that the *werden* of [*werden* + infinitive] will never appear in its infinitival form. But this is precisely what occurs within the future infinitive. Therefore, if there is a future infinitive, then the *werden* of [*werden* + infinitive] cannot be a pure modal.[28]

This conclusion is corroborated by Rothstein's argument that within the double future *werden* does not behave like a modal (Rothstein 2013a:117). A true modal resists being iterated, see, example (23).

(23) (constructed example)

    *... *dass er das machen*

    können   kann.

    can.INF   can.3SG
    '... that he can be able to do this.'

Werden, however, does get iterated within the double future, see, example (11).

To sum up, the *werden* of [*werden* + infinitive] appears not to be a modal and thus it becomes more difficult to regard [*werden* + infinitive] as a category of mood. Therefore, the other major analysis of this

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27 Vater however, largely follows Leiss later (Vater 1997:65).

28 To be sure, *werden* does have modal uses or even a modal meaning, however apparently not within [*werden* + infinitive]. In an alternative attempt to explain the data, one could categorise temporal *werden*, not as an epistemic, but as a deontic modal, which unsurprisingly does form infinitives. This is suggested by uses of temporal *werden* in commands. However, I see no way in which to conceive of *werden* in [*werden* + infinitive] as a deontic modal generally.

structure, conceiving of it as a tense, gains plausibility.[29] Thus, *future* (*infinitive*) might be no misnomer. For the rest of this paper I assume that [*werden* + infinitive] is a future tense and that its infinitival version expresses posteriority.

4.2 A potential problem for Katz-style accounts of infinitival complements

Katz (2004) investigates *to*-infinitival complements of future-oriented verbs. His example is given below as (24).

(24) *Fitz expects Arnim to laugh.* (Katz 2004:256)

Here, *expects* represents the future-oriented verb whereas *to laugh* represents its *to*-infinitival complement. The entire sentence expresses, among other things, a temporal relationship between the two events: the laughing takes place after the expecting. This meaning of posteriority, according to Katz's analysis, wholly resides in the future-oriented verb. Expressed in a more formal way:

(c) $[\![\text{expect}]\!](w,t,x,P) = 1$ iff $\forall \langle w',t' \rangle \in \text{Dox}(w,t,x) \exists t''$ $[t'' > t'$ & $P(w', t'') = 1]$[30]

Elsewhere, I defend a similar claim (Reiner 2013). However, such claims may be seriously weakened by the existence of a future infinitive. In more detail, if Katz's analysis is to hold for German too, and if German has a future infinitive then the analysis has to be changed in such a way that the infinitival complement is allowed to include at least some temporal information.

As an example, consider (25).

(25) *Bange machen läßt sich der Oberliga-Meister davon aber nicht, statt dessen verspricht Trainer Manfred „Moppes" Petz, „nicht mit leeren Händen nach Hause"*

fahr-en   zu   werden.

go-INF   INFPART   FUTAUX.INF
'However, this does not frighten the champion of the fourth division, on the contrary, their coach Manfred "Moppes" Petz promises not to go home empty-handed.'
(Frankfurter Rundschau, August 1st, 1997)

Here, the infinitival complement *fahren zu werden* does convey the meaning of posteriority, so the future-oriented verb *verspricht* ('promises') cannot be solely responsible for expressing this temporal relationship. Thus (25) illustrates the claim made above, that the infinitival complement must be allowed to include at least some temporal information.

This demand is fulfilled by other accounts of infinitivals like Stowell (1982) or Wurmbrand (2003). These authors generally admit tensed infinitives. However, they do so only under certain conditions and instances such as (25) might be excluded by Wurmbrand's account as well as by a Katz-style account.[31] Rather, in order to accommodate the analysis it may be necessary to permit redundant specification of temporal relations in sentences with infinitival complements.

4.3 System and language change

A rather obvious theoretical implication of the hypothesis that a future infinitive is emerging, is the need to explain exactly why this particular change is happening. For example, one might guess a *causa finalis*:

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29 Beside these two analyses Leiss (1992: Ch. 5) offers an alternative (for a critical evaluation see Hacke 2009:55–62).
30 Katz (2004:254) with a minor correction.
31 The relevant pages in Wurmbrand 2003 are 72, 91, and 342.

the emergence of a future infinitive in German serves the purpose to fill a paradigmatic gap, left open by the perfect infinitive and the present infinitive. In other words: if there is a perfect infinitive, expressing anteriority, as well as a present infinitive, expressing simultaneity (and by extension also posteriority), a third infinitive – a future infinitive – seems to be needed in order to explicitly express posteriority. Furthermore, the forms offer the possibility of such a formation, since from the paradigm of [*werden* + infinitive] it is easy to derive [*werden*$_{\text{INF}}$ + infinitive] as a nonfinite variant. From this angle, the change is triggered by the (German) language system.

However, if paradigmatic gaps tended to get filled in the course of language change one would expect at least one other infinitival category in German, namely a pluperfect infinitive, which does not exist. Though, it is easily constructed from the double perfect.[32] Such a constructed example is given as (26) below.

(26) (constructed example)
... dass er das

gemacht	gehabt	hab-en	kann.
do.PSTPTCP	PERFAUX.PSTPTCP	PERFAUX-INF	can.3SG

'... that he can have done this.'

In fact, this example does not appear to be totally impossible. Moreover, even an undoubtly existing gap in some paradigm could not wholly falsify the scenario sketched at the beginning of this subsection, as it cannot be stated that the pertaining gap will never be filled.

This in turn raises the question of whether such a scenario is falsifiable at all, like every good model is. In an attempt to falsify one might present cases of language change that do without any system pressure, then identify the driving forces there, and finally hypothesise that these forces are also at work, in cases where the system itself seems to cause a change. Still, however, this does not exclude the possibility that in the latter cases both the system and other forces act as triggers. Therefore falsifying the scenario sketched above proves difficult.

In conclusion, explaining the emergence of a future infinitive by means of system pressure seems to be a very plausible option at first sight; on closer inspection, however, this explanation might become vacuous. In future work, alternative explanations, such as those from sociolinguistics, should be considered.

5 Conclusions and outlook

This paper has argued that a future infinitive is emerging in present day German and pointed to some theoretical implications of such a development.

There is, however, still much work to do. As mentioned above (2.1 and 3.3), more corpus studies are needed, notably diachronic studies. With (22) in mind it even appears wise to supplement such studies with the careful examination of individual hits. This is shown for synchronic corpus studies in Reiner (2014:82–83).

Besides corpus studies, questionnaires are required to check the grammaticality of (ideally) all instances retrieved from corpora. As to double futures, a provisional questionnaire study is already available in Rothstein 2013b. However, there are serious methodological problems with this study, most of which are highlighted by the author himself (2013b:216).[33] Moreover, all instances beyond the double future still have to be tested. Finally, in a more comprehensive study, constructed examples could be included that present a forced epistemic reading of the future infinitive such as presented by example (27).

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32 For an overview of the literature on double perfects see, e.g., Rothstein (2013b:215).

33 For example, out of his three categories for judgement two are on the positive side, so that even a random choice would give a positive result (Leiss, p.c.).

(27) (constructed example)

    A: *Weißt Du eigentlich, wohin Du gerade fährst?*

    B: *Ich glaub schon, in der richtigen Richtung unterwegs*

sein	zu	werden,
be.INF	INFPART	FUTAUX.INF

mach Dir mal keine Sorgen.

'Do you actually know where you are driving? – I think, I should be going the right way, don't worry.'

If (27) is judged grammatical, *werden* here probably has to be classified as an epistemic modal, appearing in the infinitive form. This would be in line with Rothstein's hypothesis that there are epistemic uses of the double future (Rothstein 2013a:115). However, it is questionable if his example as clearly epistemic:

(28) *Bin gespannt, was Du jetzt*

sag-en	*werden*	*wirst*
say-INF	FUTAUX.INF	FUTAUX.3SG

'I'm excited what you're going to say now.'

(http://www.aquariumforum.de/threads/135822-standzeiten-von-tonroehrchen/page2, see Rothstein 2013a:115 [last checked March 11th, 2014])

Moreover, I claimed above (4.1) that epistemic modals do not appear in the infinitive form in German. So I am forced to predict that example (27) is ungrammatical and it would be important to know if, contrary to expectations, speakers do approve such examples.

    Similarly, a study on speakers' perception of the future infinitive might prove insightful. Numerous discussions about the pertaining form can be found in online forums and may be used as data.

    Finally, looking at similar phenomena in other languages may strengthen the account presented here and make it more cross-linguistically valid.

Abbreviations used in glosses

1, 2, 3	First, second, third person
AUX	Auxiliary
FUT	Future
INF	Infinitive
IRR	Irrealis
PART	Particle
PASS	Passive
PERF	Perfect
PL	Plural
PSTPTCP	Past participle
QUOT	Quotative
SG	Singular

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