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Optimal case patterns:
German and Icelandic compared

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Abstract

This study about case patterns is concerned with two related Germanic languages, which excessively use lexical case marking on verbs, Icelandic more than German. The paper shows that all existing case patterns of German, occurring either in the active or in the passive, can be derived from three sources: (i) the underlying argument ranking encoded by means of abstract case features, (ii) the lexical assignment of feature values overriding the impact of argument ranking, and (iii) a small ordered set of general constraints. The set of case patterns exhibited by Icelandic properly extends the set of German case patterns, which suggests that the constraint rankings in the two languages are the same, while Icelandic has additional ways of assigning lexical features. Data from synchronic and diachronic variation confirm the analysis proposed here. Finally, same restrictions on lexical case assignment will be discussed.

1 Introduction[1]

German verbs show various case patterns, as listed in (1). The order within these patterns reflects the semantic ranking of arguments, with the highest argument to the left and the lowest one to the right.[2] Canonical verbs display the case patterns <nom> (intransitive verbs), <nom acc> (transitive verbs) and <nom dat acc> (ditransitive verbs); these patterns can be predicted solely by means of the semantic ranking. All other case patterns arise from lexical marking on at least one of the argument roles. The symbol '◊' indicates a case that follows from a lexical feature. However, two questions come up here: Why is it this argument that is lexically marked, and by what type of feature? [3]

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[1] This paper owes much to the preceding work by Fanselow (2000) on exceptional case in German, as well as to the typological study by Stiebels (2000, 2002). The research was carried out in the project on verb structures within the SFB 282 'Theory of the Lexicon', funded by the German Science Foundation (DFG). I would like to thank Jóhanna Barðdal for her expertise in Icelandic case, as well as two anonymous reviewers for constructive remarks.

[2] Throughout the paper, this order is always indicated by small letters, e.g., <nom dat acc>. Such an order corresponds to the default order of case-marked DPs in a German clause (Lenerz 1977). There are other tests for confirming this order as basic (Barss & Lasnik 1986, Frey 1993). To my knowledge, the best criterion for German is the position of unspecific wh-pronouns, as illustrated in (i) vs. (ii):

(i)   Ich fragte, ob wer wem geholfen hat. / ??wem wer   <nom dat>
        I asked whether someone.NOM someone.DAT helped

(ii)   Ich fragte, ob wem wer gefallen hat. / ??wer wem   <dat nom>
        I asked whether someone.DAT someone.NOM liked

[3] There are two further patterns with a predicative NP, whose case-marking always follows from case concord with the respective subject, namely <nom nom> with copular verbs, and <nom acc acc> with verbs such as *nennen* 'call'. These patterns are fully neglected in the following.

   Haider (1985, 2001) also assumes the pattern <acc nom> as an alternative realization of experiencer verbs such as *beeindrucken* 'impress', *ängstigen* 'alarm', *interessieren* 'interest'. However, the test with unspecific wh-pronouns shows that <nom acc> is basic:

(i) Ich fragte, ob wer wen beeindruckt hat. /??wen wer

     I asked whether someone.NOM someone.ACC impressed

The alternative order <acc nom> is often preferred with inanimate 'themes', or with animate 'themes' in order to suppress the suggestion that the effect is brought about intentionally. Such a subtle semantic effect does not justify a second lexical entry for these verbs.

(1) German case patterns

Type	Active			Passive	example
i1	Nom			argu-mentless	**canonical**
i2	acc◊			*	*frieren* 'feel cold'
i3	dat◊◊			*	*grauen* 'shudder'
t1	nom acc		i1	nom	**canonical**
t2	nom dat◊		i3	dat◊	*helfen* 'help', *folgen* 'follow'
t3	nom gen◊		i4	gen◊	*gedenken* 'remember'
t4	dat◊ nom			*	*gefallen* 'like', *gehören* 'belong'
d1	nom dat acc		t4	dat nom	**canonical**
d2	nom acc dat◊		t2	nom dat◊	*aussetzen* 'expose to', *unterziehen* 'subject to'
d3	nom acc◊ gen◊		t3	nom gen◊	*erinnern* 'remind', *anklagen* 'accuse'
d4	nom acc◊ acc		t5	acc◊ nom	*lehren* 'teach'
			t1	nom acc	*fragen* 'ask'

The list of case patterns given in (1) fully corresponds to the list in Fanselow (2000), however, the assumed lexical markings differ from those proposed by Fanselow in the classes t4, d3, and d4. Fanselow pursues the idea that the possibilities of lexical marking follow from more general principles. He states the following generalizations (which, however, he assumes to be violable, e.g. in Icelandic).

(2) Fanselow's generalizations:

Gen1. The highest argument of a causative (agentive) verb is never marked.

Gen2. At most one argument is marked.

Gen3. Only the lowest argument can be marked.

Fanselow assumes that the pattern <dat nom> (class t4) is regular for basic verbs because this pattern also appears in the passive of canonically ditransitive verbs; for him, the basic verbs following this pattern are 'unaccusatives' within the class of 2-place verbs (a claim which goes back to Grewendorf 1989). However, it is unclear under what premises a passive pattern can count as the model for base verbs; Baker's Case Frame Preservation Principle (CFPP) rather predicts the opposite relationship, namely that

passive patterns with the case frame of a base verb.[4] Other linguists (Blume 2000, among others) claim that the dative in the <dat nom> pattern follows from semantic reasons; again, it is unclear which deviations from the canonical patterns are semantically triggered and which are not. In nearly every class of lexically marked items some belong to this class for semantic reasons, while others are rather arbitrarily marked.[5] Although I do not deny the possibility of a semantic background for exceptional case marking, I will assume that each lexical marking consists in a case feature that belongs to the same set of case features used in the canonical patterns. (For instance, no distinction is made between regular and 'oblique' dative.) Only the genitive is transferred from the nominal to the verbal system, but with the same type of feature.

Fanselow further claims that double accusative verbs (class d4) are lexically marked for the lowest rather than the medial argument, and consequently, that only the pattern <nom acc> can appear in the passive because the lexical marked case should be preserved in the passive. However, the passive of double-accusative verbs in fact shows some variation between individual verbs, as well as between speakers (see also Paul 1919:254, Plank 1987, Lutzeier 1992). Consider the distribution of question marks in the following examples with *lehren* 'teach' and *fragen* 'ask'.

(3) a. weil   er   die   Studenten nichts als großen
       because he.NOM   the.pl.ACC   students   nothing but great.sg.ACC
       Blödsinn lehrte
       rubbish   taught

    b. weil   die   Studenten *nichts als   großer*
       because the.pl.ACC   students   nothing but   great.sg.NOM
       Blödsinn gelehrt   wurde
       rubbish   taught   AUX.3sg

    c. ?weil   die   Studenten *nichts als   großen*
       because the.pl.NOM   students   nothing but   great.sg.ACC
       Blödsinn gelehrt   wurde
       rubbish   taught   AUX.3sg

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[4] "A complex X° of category A in a given language can have at most the maximal Case assigning properties allowed to a morphologically simple item of category A in that language." (Baker 1988:122)

[5] For instance, some experiencer verbs (such as *gefallen* 'like', *auffallen* 'strike', *schmecken* 'taste') are dative-marked, alongside with non-experiencer verbs (such as *gehören* 'belong', *fehlen* 'lack', *entgleiten* 'slip away'), while other experiencer verbs have a canonical case frame (*mögen* 'like', *genießen* 'enjoy', *fühlen* 'feel'). There are also expletive and inherently reflexive experiencer verbs (*es freut mich, ich freue mich* 'I am glad'), which are always canonical.

      d.   weil   *nichts   als   großer*   *Bödsinn* gelehrt wurde
           because nothing but   great.sg.NOM rubbish taught AUX.3sg

(4) a.   weil   er   die   Studenten nur   großen
           because he.NOM the.pl.ACC students   only   great.sg.ACC
           Blödsinn fragte
           rubbish   asked

      b.   ?? weil die   Studenten *nichts   als   großer*
            because the.pl.ACC students   nothing but   great.sg.NOM
           Blödsinn gefragt wurde
           rubbish   asked   AUX.3sg

      c.   weil   *die*   *Studenten* nichts als   großen
           because the.pl.NOM students   nothing but   great.sg.ACC
           Blödsinn gefragt   wurden
           rubbish   asked   AUX.3pl

      d.   weil   *nur   großer*   *Blödsinn* gefragt wurde
           because only   great.sg.NOM rubbish asked   AUX.3sg

Most speakers prefer <nom acc> for the passive of *fragen* 'ask' (4c), whereas many speakers also accept the pattern <acc nom> for the passive of *lehren* 'teach' (3b). In every case is it possible that the lowest argument is realized in the nominative (3d, 4d). These data indicate some free variation in the passive of double-accusative verbs; moreover, the fact that an argument is realized by nominative in the passive cannot be conclusive for excluding this argument from lexical marking (contrary to the widely held assumption that only structural case can alternate). However, there is no doubt that at least one argument must be marked in the double-accusative verbs.

    We thus arrive at a bundle of questions: Which argument is marked, and by what type of feature? How can a marked argument nevertheless be realized by nominative? Is the selection of lexical features arbitrary, or how is it constrained? What is the relationship between possible active and passive patterns? Above all: How can a structural account provide for the whole set of case patterns found in German?

    Some of these questions can only be addressed in a constraint-based approach. For proposing a constraint ranking that is general enough one has to consider also the more complex instances (such as the passive of ditransitive verbs). But if good reason is found to assume a particular ranking, this ranking, then, predicts which type of lexical marking is necessary in order to induce a certain observed case pattern. The range of speculation is minimized if we put ourselves under the strong regimentation of a constraint-based approach.

The paper proceeds as follows. Section 2 introduces the general frame-work of case linking in a correspondence-theoretic account, and section 3 deals with all existing case patterns of German. In section 4, the quirky case patterns of Icelandic are compared with those in German. It will turn out that the set of case patterns found in Icelandic is a proper extension of the set of case patterns in German. This suggests that the constraint ranking is the same as in German, but additional strategies for lexical marking are used. Section 5 discusses the findings in German and Icelandic more generally; it addresses the question of how lexical marking is constrained, and considers expected variations in terms of simplification of lexical marking.

2 The fundamentals of a correspondence-theoretic analysis of case

Lexical Decomposition Grammar (LDG, Wunderlich 1997, 2000a) makes the assumption that morphological case is determined by argument ranking, which itself uniquely follows from the decomposed SF representation of a verb or a verb complex. The theta-roles, forming the level of theta structure (TS), are encoded by means of two abstract case features ([+hr] 'there is a higher role', and [+lr] 'there is a lower role')[6], but it is possible that this default ranking is overridden by feature values assigned lexically.[7]

The argument linkers, such as morphological case, pronominal affixes and syntactic positions with regard to the verb, are encoded in terms of the same features. This allows us to consider the relation between TS and the morpho-syntactic structure (MS) as a correspondence-theoretic problem. TS constitutes the input, and MS the output. Besides case features, the argument theta roles may also bear information about person-number, animacy and definiteness, and the event role of the verb can be characterized by features of aspect or tense. All the input features may have positive or negative values, but in the morpho-syntactic output only positive features are speci-

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[6] Case features of this kind have first been proposed by Kiparsky (1992). However, I deviate from his proposal for markedness considerations.

[7] These lexical features are not fully arbitrary since they are often motivated conceptually and thus serve to characterize semantic classes of verbs: [+hr] may invite the inference that the respective argument is affected, while [+lr] may invite the inference that this argument is (partly) a controller, which is in accordance with the proto-role account by Dowty (1991) and his followers. However, the lexical marking is often purely idiosyncratic from the synchronic point of view and can be motivated only by historical reasons, or by some kind of analogy. Paul (1919) cites many examples where a particular verb shifts between canonical case and lexically marked case several times in the history of German.

fied, according to the assumptions of Minimalist Morphology (Wunderlich and Fabri 1995, Wunderlich 1996).[8]

The relation between TS and MS is minimally determined by two types of faithfulness constraints, MAX and IDENT. In addition, MS is governed by markedness constraints since every structure realized at MS is expensive. (For the following, see also Stiebels 2000, 2002.)

(5)   a.   MAX(αF): Every feature [αF] in the input has a correspondent in the output, with α={+,−}.

       b.   IDENT(F): Input-output correspondents are identically specified for F.

       c.   *[+F]: Avoid [+F] in the output.

If the feature F is realized at MS, the general ranking that accounts for this fact is IDENT(F) ≫ MAX(αF) ≫ *[+F]. The possible input-output relations are, then, the following:

(6)   Possible input-output relations:

	input	output	IDENT(F)	MAX(αF)	*[+F]
☞	+F	+F			*
	+F	[ ]		*!	
	−F	+F	*!		*
☞	−F	[ ]		*	

(6) shows that [+F] is optimally realized by a morpheme that bears this feature, while [−F] is optimally realized by an underspecified morpheme. Since [−F] can never survive at MS because there is no morpheme with this feature (according to the minimalist account), I will neglect MAX(−F) in the following.

Considering morphological case, the relevant feature specifications are given in (7).

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[8] Morphemes that are underspecified for a feature may acquire a negative value for this feature by the paradigmatic contrast with other morphemes.

(7) DAT: [+hr,+lr]

   ACC: [+hr]

   ERG: [+lr]

   NOM: [   ]

In a pure ACC-system, ACC but not ERG appears in MS. This fact follows from the two independent rankings MAX(+hr) ≫ *[+hr] and *[+lr] ≫MAX(+lr). If no others factors intervene, these two rankings can best be aligned by the assumption that the two higher constraints and the two lower constraints are respectively co-ranked. For a canonical transitive verb shown in (8a), the optimal case pattern, then, is <nom acc> , as can be seen from the evaluation in (8b).

(8) Canonical transitive verbs in an ACC-System

   a. λy λx λs VERB(x,y)(s)
      +hr −hr
      −lr +lr

   b. Evaluation of candidates:

y x	IDENT(hr)	IDENT(lr)	MAX(+hr)	*[+lr]	MAX(+lr)	*[+hr]
☞ ACC NOM					*	*
ACC ERG				*!		*
NOM ERG			*!	*		
NOM NOM			*!		*	
DAT NOM		*!		*	*	*
NOM ACC	*!				*	*

The occurrence of ERG is blocked by *[+lr], whereas the failure of realizing ACC is blocked by MAX(+hr). Both the appearance of DAT and the reversal of the canonical pattern are blocked by IDENT constraints.

3 The optimal case patterns of German

In order to account for all of the existing case patterns in German, some additional constraints are necessary. The following constraints will turn out to be both necessary and sufficient.[9]

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[9] As Stiebels (2000, 2002) has shown, the latter three constraints also play an important role for the typology of languages. Stiebels (2002) argues that DEFAULT accounts for economy, UNIQUENESS for explicitness, and MAX(F) for expressivity, which are fundamental notions for every language. A constraint similar to MAX(lexF) has also been proposed by Woolford

(9) a. MAX(lexF): Every lexically assigned (positively-valued) feature in the input has a correspondent in the output.

    b. DEFAULT: Every linking domain displays the default linker (nominative).

    c. UNIQUENESS: Each linker applies only once in a domain.

    d. MAX(+hr,+lr): Every feature combination [+hr,+lr] in the input has a correspondent in the output.

MAX(lexF) is necessary in order to capture the fact that feature values that are lexically assigned should be visible in the output (otherwise the concept of lexical marking would become senseless); moreover, under the assumption that morphemes only bear positive features, only these features can become visible directly. DEFAULT is motivated by the assumption of economy: Every case pattern should be realized by minimal effort, so it should include the default form of a NP. UNIQUENESS serves to avoid ambiguity: If two positions in a case pattern are realized identically, it is hard to distinguish the arguments, unless the sortal restrictions imposed by the verb or the syntactic positions of the arguments function as discriminating factors. Finally, MAX(+hr,+lr), a local disjunction in the sense of Smolensky (1995), reflects the requirement that all maximally marked theta roles should be visible, hence, dative appears as an invariant case (Haider 1985). For logical reasons, this constraint must rank above both MAX(+hr) and MAX(+lr). As we will see below, the other three constraints are even higher-ranked in German. Provisionally, I assume that all four constraints rank above MAX(+hr) but not higher than the IDENT constraints, which are mostly neglected in the following.

A further remark is at place here. Both DEFAULT and UNIQUENESS are global constraints in the sense that case realization of one of the arguments is not independent from that of others. Therefore, what is evaluated is always a whole case pattern associated with a predicate rather than single cases. We will see below that for this reason lexical features can exceptionally also be negatively valued; although there is no direct counterpart in morphological case, these features become effective by their influence on the case pattern as a whole.

The constraint ranking can best be detected if one investigates the more complex patterns formed with ditransitive verbs. Consider first the canonical ditransitives, in which the medial argument is assigned [+hr,+lr] by de-

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(2001), termed FAITH-LEX. A constraint similar to MAX(+hr,+lr) has been discussed by Fanselow (2000:194), which he calls DATREAL "A dative syntactically present in a structure must also been realized morphologically". Note, however, that [+hr,+lr] characterizes the underlying ranking in TS rather than a syntactic structure.

fault; their active is illustrated in (10a), and their passive in (10b), each with an example and the corresponding theta-structure. The assumption for the passive is that it binds the highest (agentive) argument existentially, but does not shift anything in the default assignment of case features.

(10) Canonical ditransitive verbs:

    a.   als   Peter   dem   Touristen den   Dom   zeigte
         when Peter the.DAT tourist   the.ACC cathedral showed
         'when Peter showed the cathedral to the tourist'

Active: λz λy λx λs $\{$ACT(x) & SEE$(y,z)\}(s)$
        +hr   +hr −hr
        −lr   +lr   +lr

    b.   als   dem   Touristen der   Dom   gezeigt wurde
         when the.DAT   tourist   the.NOM cathedral shown was
         'when the tourist was shown the cathedral'

Passive: λz λy $\exists x$ λs $\{$ACT(x) & SEE$(y,z)\}(s)$
         +hr   +hr
         −lr   +lr

The evaluation of candidates in the active is shown in (11), with the preliminary assumption that all additional constraints ranking above MAX(+hr) are co-ranked.

(11) Canonical ditransitive verbs

z y x	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞ ACC DAT NOM						*	*	**
ACC ACC NOM			*	*			**	**
NOM ACC NOM			*	*	*		**	*
ACC NOM NOM			*	*	*		**	*
NOM NOM NOM			**	*	**		**	

This tableau shows that, in order to account for the pattern <nom dat acc>, either UNIQUENESS or MAX(+hr,+lr) must dominate MAX(+hr). Both constraints are able to exclude <nom acc acc>; so at least one of these constraints is needed in order to establish DAT as a separate case.

    In the passive of these verbs, represented in (10b), nothing is changed except that the highest (agentive) argument is blocked from realization.

(12)   Passive of canonical ditransitive verbs

	z y	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞	NOM DAT					*	*		*
	ACC DAT		*!				*		**
	ACC ACC		*!	*	*			*	**
	ACC NOM				*!	*		*	*
	NOM ACC				*!	*		*	*
	NOM NOM			*!	*	**		*	

This evaluation shows that both DEFAULT *and* MAX(+hr,+lr) have to dominate MAX(+hr). DEFAULT excludes the pattern <dat acc>, which lacks NOM (although this pattern realizes the objects in the active), and MAX(+hr,+lr) excludes the pattern <acc nom>, as well as its reversal <nom acc>. Thus, the optimal case pattern <dat nom> in the passive of a ditransitive verb turns out to be quite distinct from that of a canonical transitive verb. It occurs independent of the fact of whether <dat nom> is established as a lexically marked pattern for simple verbs.

German also has a marked class of ditransitives (mostly prefix or particle verbs) which exhibit the pattern <nom acc dat> rather than <nom dat acc>, and have <nom dat> in the passive (Haider 1985, Wegener 1991). For the theta-structure given below the examples in (13) it is assumed that the lowest argument of these verbs is lexically marked by [+lr]; all other feature values are instantiated by default.

(13)   Lexically marked ditransitive verbs:

    a.   weil   der   Arzt   den   Patienten einem
        because the.NOM doctor the.ACC patient   a.DAT
        Test   unterzog
        test   exposed
        'because the doctor exposed the patient to a test'

    Active: λz   λy   λx   λs   {ACT(x) & BEC EXPOSED(y,z)}(s)

    lexical   +lr
    default   +hr   +hr   –hr
            +lr   +lr

    b.   weil   der   Patient einem   Test unterzogen wurde
        because the.NOM patient a.DAT   test   exposed   was
        'because the patient was exposed to a test'

Passive: λz   λy   ∃x λs   {ACT(x) & BEC EXPOSED(y,z)}(s)
lexical   +lr
default   +hr +hr
           +lr

The evaluation of the active of these verbs is given in (14).

(14) Lexically marked ditransitive verbs

	z y x	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞	DAT ACC NOM				*		*	**	**
	ACC DAT NOM	*!			*		*	**	**
	DAT DAT NOM			*!			**	*	**
	ACC ACC NOM	*!		*	**			***	**

This tableau shows that both MAX(lexF) *and* UNIQUENESS are necessary. MAX(lexF) ensures that the lexical feature [+lr] on the lowest argument is visible by the realization of DAT. Moreover, the ranking UNIQUENESS ≫ MAX(+hr,+lr) excludes the alternative pattern <nom dat dat>; it is thus tolerated that the default feature [+lr] does not appear in the output.

Turning to the passive of these verbs, represented in (13b), one sees that here also the ranking DEFAULT ≫ MAX(+hr,+lr) is necessary in order to exclude the pattern <acc dat>. This is shown in the next tableau.

(15) Passive of lexically marked ditransitive verbs

	z y	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞	DAT NOM				*	*	*	*	*
	NOM DAT	*!			*	*	*	*	*
	DAT ACC		*!		*		*	*	**
	DAT DAT		*	*			**		**

Ditransitive verbs are maximal in German because a productive morphological causative that could extend the number of arguments even further does not exist. At the other end of the scale are intransitive verbs deviating from the canonical pattern in that they do not have a NOM-subject. Intransitive <acc> verbs are designated by the lexical feature [+hr], and intransitive <dat> verbs by the feature combination [+hr,+lr]. The tableau in (16) shows

that the ranking MAX(lexF) ≫ DEFAULT is necessary in order to avoid the expected nominative in intransitive verbs.

(16) Intransitive accusative verbs in German:

weil   mich   dürstet
because 1sg.ACC   thirsty.3sg
'because I am thirsty'
            λx   λs   THIRSTY(x)(s)
lexical   +hr
default   –lr

		MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
	x								
☞	ACC		*						*
	NOM	*!				*			

In the remainder of this section I will show that the constraint ranking established in (16) is sufficient to predict all the other possible case patterns in German, too. Only the relation between MAX(lexF) and UNIQUENESS has not yet been determined (but see below).

Two-place verbs with DAT must have one argument role marked; in the present account it is sufficient that only one of the features [+hr] or [+lr] is lexically assigned. If the lower argument (which is [+hr] by default) is marked by [+lr], it is realized by DAT. If, in contrast, the higher argument (which is [+lr] by default) is marked by [+hr], it is this argument that is realized by DAT, while the lower argument is realized by NOM, due to DEFAULT. Therefore, <nom dat> arises if the lower argument is marked, and the inverse pattern <dat nom> arises in case the higher argument is marked. Consider the theta-structures in (17) and the evaluations in (18).[10]

(17) a.   <nom dat> verbs:

weil   der   Freund ihm   half
because the.NOM friend   he.DAT helped
'because the friend helped him'
            λy   λx   λs   HELP(x,y)(s)
lexical   +lr
default   +hr   –hr
                  +lr

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[10] It is important to notice here that the case assignment in the verbs with an inverse pattern has nothing to do with the fact of whether the higher or the lower argument is designated in syntax, which is important for Icelandic (see Wunderlich 2000b and below).

b. Inverted <dat nom> verbs:

als   ihm   der   Teller   entglitt
when   he.DAT   the.NOM   plate   slipped away
'when the plate slipped out of his hands'

            λy   λx   λs   SLIP-AWAY(x,y)(s)
lexical   +hr
default   +hr
          −lr   +lr

(18)   Two types of 2-place verbs with DAT

a. DAT-object y x	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞ DAT NOM						*	*	*
ACC NOM	*!			*			**	*

b. inverted verbs y x	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞ NOM DAT					*	*		*
ACC DAT		*!				*		**
NOM ACC				*!	*		*	*

Particularly problematic are double-accusative verbs, which violate
UNIQUENESS. I assume that in this case the medial argument is exception-
ally marked by the feature value [−lr] (which forbids dative), indicated in
the theta-structure of (19a). There is no morphological case with such a
specification, so MAX(lexF) is irrelevant here. Fortunately, IDENT(lr) suf-
fices to ensure the appearance of ACC on the medial argument, as shown
in (20).

(19)   Double-accusative verbs in German:

     a.   als   er   mich   den   Reim   lehrte
        when he   1sg.ACC   the.ACC   rhyme   taught
        'when he taught me the rhyme'

        Active: λz   λy   λx   λs   ACT(x) & BEC KNOW(y,z)}(s)
        lexical   −lr
        default   +hr   +hr   −hr
                   −lr   +lr

b. Passive: λz   λy   ∃x λs   {ACT(x) & BEC KNOW(y,z)}(s)

    lexical   –lr

    default   +hr   +hr

                   –lr

(20)   Double accusative verbs

		ID(lr)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
	z y x								
☞	ACC ACC NOM			*				*	**
	ACC DAT NOM	*!					*	*	**
	NOM DAT NOM	*!		*		*	*	*	*

The relevant order must be IDENT(lr) ≫ UNIQUENESS, otherwise the pattern <nom dat acc> would be the winning candidate. If one considers MAX(lexF) to be co-ranked with IDENT(lr) because these constraints serve similar functions, it follows the ranking MAX(lexF) ≫ UNIQUENESS.

Turning now to the passive of double-ACC verbs, represented in (19b), one can see that our constraint ranking predicts that either object may be realized by NOM. If NOM realizes the medial role, which is lexically marked by [–lr], just the same constraints are violated than if it realizes the lowest role, which is [–lr] by default.

(21)   Passive of double accusative verbs:

		ID(lr)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
	z y								
☞	NOM ACC					*			*
☞	ACC NOM					*			*
	ACC ACC		*	*					**
	ACC DAT	*!	*				*		**

This result indicates that any conclusion about double-ACC verbs based on the way in which the passive is formed must fail. In the contrary, the established constraint ranking predicts variation in the passive. Whether it is more accepted that the medial or the lowest argument is realized by NOM must be conditioned by further factors.

One may ask whether there is an alternative way of characterizing double-ACC verbs. Let us hypothetically assume that the lowest argument is marked by [–lr], although it would get ACC by default. In this case, the me-

dial argument still must be marked by [–lr] because otherwise it would be realized by DAT. Hence, the result remains the same as in (21). In other words, the lexical marking proposed in (19) is the optimal one.

German also exhibits a small class of verbs triggering the pattern <nom acc gen>. These verbs are doubly marked: the lowest argument must be GEN, and the medial argument must be marked by [–lr] in order to escape MAX(+hr,+lr). I assume that GEN is a structural case specified for [+hr] in the nominal domain. This predicts that with verbs, GEN can only be substituted for ACC; the additional feature in which GEN differs from ACC is here abbreviated as [+G] for mnemotechnic reasons.[11]

(22) Ditransitive verbs with genitive:

    a.   weil   er   mich   des   Plagiats   beschuldigte
         because he me.ACC the.GEN plagiarism.GEN accused
         'because he accused me of the plagiarism'

	λz	λy	λx	λs {ACT(x) & BEC ACCUSED(y,z)}(s)
lexical	+G	–lr		
default	+hr	+hr	–hr	
			+lr	

    b.   Passive:
        weil   ich   des   Plagiats   beschuldigt wurde
        because I.NOM the.GEN plagiarism.GEN accused   was
        'because I was accused of the plagiarism'

---

[11] German also has 2-place verbs with GEN for the lower argument; they are represented with the feature [+G] for the lower theta-role; the evaluation is similar to that of (23) and (24). These verbs often alternate with ACC for the lower argument (where the lexical feature is dropped), sometimes also with DAT for the lower argument (where the feature [+G] is replaced by [+lr], which belongs more to the verbal system of German). See Paul (1919: 354) and Lenz (1999). Note that GEN entered the domain of the verb as a partitive marker, and was only later reanalysed as a lexical feature. Therefore, there is some pressure to drop this feature. It is generally possible that GEN is also replaced by a PP-argument in the historical development.

The question arises why Modern German has lost <nom dat gen> verbs, which formerly existed (see (26) below). As we will see below ((37) to (39)), the corresponding class of Icelandic verbs needs a more complex lexical marking than the single feature [+G]. Our constraint ranking predicts that a ditransitive verb with only the lowest argument marked by [+G] yields <nom gen> in the passive (see (39)). There might be more reasons (not yet captured by the constraint MAX(+hr,+lr)) why the alternation between dative and nominative is avoided.

The medial argument can never be genitive, i.e. the pattern <nom gen acc> (with <gen nom> in the passive) does not exist. This fact cannot be explained on the basis of our constraint ranking, it rather reflects the way in which the genitive entered the verbal domain: only the lowest argument can be affected by the partitive. Note also that in nominalizations with more than one argument inherited from the verb the genitive always selects the lowest argument (Ehrich & Rapp 2000, Stiebels 2001).

The evaluation of these verbs is shown in (23) for the active, and in (24) for the passive.

(23)   Ditransitive verbs with genitive

Z y x	ID (lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞ GEN ACC NOM								*	**
GEN DAT NOM	*!						*	*	**
ACC DAT NOM	*!	*					*	*	**
ACC ACC NOM		*!		*				*	**

(24) Passive of ditransitive verbs with genitive

z y	ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞ GEN NOM						*			*
GEN ACC			*!						**
NOM ACC		*!				*			*

The interaction of the two lexical features thus establishes the pattern <nom acc gen> as optimal in the active, and <nom gen> in the passive. Note that, in distinction to the double-ACC verbs, only one passive form is possible here.

Summarizing, three kinds of lexical marking have been found for German.

- Either the lowest or the highest argument of a verb is marked for a more specific case. In order to be realized by dative, the lowest argument must be marked by [+lr], while the highest argument must be marked by [+hr]. These two types of marking can collapse on one argument in the intransitive verbs.
- The medial argument of a verb can only be marked for a less specific case. More specifically, the feature [−lr] restricts such an argument to accusative rather than dative. This minus-valued feature has no influence on the potential to be realized by nominative in the passive.
- The lowest argument of a verb can be additionally marked by the feature [+G].

A double marking is only found with intransitive DAT-verbs (where a single argument is marked by [+hr,+lr]), and with ditransitive GEN-verbs (where the medial argument is marked by [−lr] and the lowest argument by [+G]).

The scenario for double marking predicts that ditransitive GEN-verbs might be simplified along two ways:

(25)

<nom   acc   gen>
    –lr   +G

<nom   acc   acc>   <nom   dat   gen>
    –lr   +G

<nom   dat   acc>

There is historical evidence that double-accusative verbs have appeared as an intermediate stage between GEN-marked ditransitive verbs and canonical ditransitive verbs, although in some verbs, the historical shift may also have been performed in one step (Paul 1919:418f). There is also evidence for the former existence of verbs with the pattern <nom dat gen> in negation contexts (see example (26), cited from Luther in Paul 1919:452); these verbs have now totally been shifted to the canonical pattern <nom dat acc>.

(26) darumb   solt   jm   der   keiser   solche
     therefore   should   he.DAT   the.NOM   emperor   such
     lehens   nit   gestatten.
     fee.GEN   not   allow
     'Therefore, the emperor should not allow such a fee to him'

However, there is no evidence that <nom acc gen> verbs have ever been shifted to <nom dat gen> verbs, although the latter are more simple in terms of lexical marking. This fact might be explained by the assumption that lexically marked '+' features are easier given up than lexically marked '–' features; or there might have been some conceptual barrier between the verbs belonging to the class with ACC and those belonging to the class with DAT. (See also footnote 11.)

Another important result is that the constraint ranking established for independent reasons predicts that there is one class of verbs in German with case alternation in the passive (namely, the double-ACC verbs), which is empirically correct.

Methodologically, the tools developed in LDG and its correspondence-theoretic version allow one to derive a unique constraint ranking for a language, based on a few examples of considerable complexity, and then to predict which features must be lexically assigned in all the other deviant patterns. It turns out that nothing has been left from Fanselow's generalizations Gen2 and Gen3 in (2), stating that at most one argument is marked, and that only the lowest argument can be marked. In fact, all arguments can be marked lexically, except the highest argument of a ditransitive verb.

Since such a verb is always a causative verb, Fanselow's Gen1 seems to be correct.[12]

In the following section, the findings in German are compared with those in Icelandic.

4 The optimal case patterns of Icelandic

This section shows that the optimal case of Icelandic follows from the same constraint ranking as that established for German. Icelandic exhibits (with one exception) all the case patterns of German, but has several more in addition. These additional case patterns originate, as I will claim, from additional strategies of exceptional case marking. The grammatical difference between these two languages with regard to morphological case-marking is thus minimal. The main difference rather concerns the way in which 'quirky cases' behave in more complex constructions such as control, raising to object, and coordination (Zaenen, Maling and Thráinsson 1985). With respect to these constructions, it is generally assumed that the nominative argument (NOM) is subject in German, while the highest argument (HIGH) is subject in Icelandic. In Wunderlich (2000b), I have argued that the notion of (underlying) subject is too simple a notion; both German and Icelandic show phenomena that can be captured only if there is reference to both the highest argument (semantically) and the least marked argument (morphologically). From the differences in the basic order of V and I (initial in Icelandic vs. final in German) it follows that Icelandic requires a designated argument to occupy SpecI in front of I, whereas German syntax has no such designated position. In other words, Icelandic has a syntactically defined 'subject', which is lacking in German. A couple of differences between Icelandic and German are induced by just this factor. Furthermore, the constraints that govern the behavior in control and raising structures (relating to NOM or HIGH) are differently ordered in these two languages. These constraints, however, have nothing to do with the case-marking system, which is the same in German and Icelandic. Moreover, they are also distinct from the agreement system, which is not the same (though very similar) in German and Icelandic.

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[12] Assuming the inferences of [+hr] 'being affected' and [+lr] 'being a controller' (see footnote 7), an Agent is by definition [+lr,−hr]; therefore, it is unexpected that it is marked in the highest position, which is by default [+lr,−hr].

Fanselow himself (2000:197) considers his generalizations Gen2 and Gen3 to be violable, i.e., they are meant as constraints (which Fanselow tries to derive from more general syntactic principles) rather than as empirical observations. However, I do not think that constraints of this kind can capture the inherent logic of restricting lexical marking that overrides the effects of argument ranking. See section 5.1 below.

4.1 The additional case patterns of Icelandic

The studies of Andrews (1982, 1990), Zaenen, Maling & Thráinsson (1985, ZMT), and Yip, Maling & Jackendoff (1987) have established that all the case patterns attested for German are also found in Icelandic. There is only one (irrelevant) exception: the double-ACC verbs with the pattern <nom acc acc> of Icelandic are not similar to those of German (exemplified by *lehren* 'teach' and *fragen* 'ask' in (3)-(4) above); all the Icelandic double-ACC verbs have a predicative, a cognate, or a route object and thus only allow one kind of passive (ZMT 1990: 109-110), whereas the 'true' double-ACC verbs of German show variation in the passive. However, since the double-ACC verbs were not crucial for determining the constraint ranking in German, this difference between the two languages can be neglected. Rather, one has to conclude that Icelandic must have the same constraint ranking as German in order to establish all the case patterns that are in common.[13]

The additional case patterns attested for Icelandic are the following. (The symbol '◊' indicates a marked feature value.)

(27) Additional Icelandic case patterns

Type	Active		Passive	Example
t5	acc◊◊ acc◊		*	*vanta* 'lack'
t6	dat◊ acc◊		*	*vanta* 'lack' (newly developed)
t7	acc◊◊ gen◊		*	*iðra* 'repent' (rare)
t8	gen◊ nom		*	*er enginn kostur* 'be no chance' (very rare)
t9	acc◊◊ nom		*	*sækja syfja* 'seek sleepiness' (very rare)
d5	nom dat◊ dat◊		dat◊ dat◊	*lofa* 'promise', *skila* 'return'
d6	nom dat gen◊		dat gen◊	*óska* 'wish'

Since these case patterns extend the set of case patterns found in German, the constraint ranking of Icelandic should be the same as that of German;

---

[13] There is one further difference: German has only one passive of the canonical ditransitive verbs (<nom dat acc> → <dat nom>), whereas Icelandic has two, according to the fact that either the DAT or the NOM argument can be designated for SpecI, where it functions as the syntactic 'subject' (ZMT 1990:112, Wunderlich 2000b). The same is true for a subclass of inverted <dat nom> verbs of Icelandic (Barðdal 1999), which may be called 'alternating'. All this concerns the property of participating in complex constructions rather than the choice of morphological case. However, in order to account for the difference between the alternating and the non-alternating inverted verbs, the latter have to be lexically marked by [–hr] for the lower argument in order to block this argument to get designated (Wunderlich 2000b).

the difference between these two languages should rather consist in additional types of lexical case marking for Icelandic.

4.2 The Icelandic types of lexical case marking [14]

Most spectacular for Icelandic is the existence of <acc acc> verbs, exemplified by *vanta* 'lack' in (28a). Let us hypothetically assume that the higher argument of these verbs is marked by [+hr,–lr], which is what the lower argument receives by default.

(28) Two-place double-accusative verbs of Icelandic, first attempt:

 Mig vantar hníf.
 me.ACC lacks knife.ACC
 'I lack a knife' (Smith: 683)
      λy λx λs LACK(x,y)(s)
 lexical   +hr
        –lr
 default +hr
     –lr

The evaluation in (29) shows that under this assumption the pattern <acc nom> is predicted to be optimal, which is wrong.[15]

(29) Double-accusative verbs

		ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
	y x									
	ACC ACC			*!	*					**
	ACC NOM		*!				*			*
	ACC DAT	*!		*				*		**
💣	NOM ACC						*			*
	NOM DAT	*!					*	*		*

Therefore, the lower argument must be marked, too, in order to escape the effects of both DEFAULT and UNIQUENESS. If the feature value [+hr] is already lexically fixed rather than assigned by default, it cannot be ignored,

---

[14] If not marked otherwise, all examples are taken from the above-mentioned work by Andrews (1982, 1990), Zaenen, Maling & Thráinsson (1985), and Yip, Maling & Jackendoff (1987).

[15] Obviously, the lexical assignment in (28) yields the correct result for constructions with the pattern <acc nom> (see t9 in (27)). Bernódusson (1982:40f.) cites *skömm henda* 'shame befalls', in which the human experiencer optionally shifts between lower and higher argument.

according to the high ranking of MAX(lexF). The effect of this modification is shown in (30).

(30) Two-place double-accusative verbs of Icelandic, second attempt:

$$\lambda y \quad \lambda x \quad \lambda s \quad \text{LACK}(x,y)(s)$$

lexical +hr +hr
                −lr
default −lr

		ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞	ACC ACC			*	*					**
	ACC NOM		*!				*			*
	ACC DAT	*!		*				*		**
	NOM ACC		*!				*			*
	NOM DAT	*!	*				*	*		*

The tableau in (30) now shows that the <acc acc> pattern is optimal, even though it violates both DEFAULT and UNIQUENESS. It has been observed in the literature (Smith 1994, among others) that the <acc acc> verbs of Icelandic now turn to <dat acc> verbs. Within our account, this 'dative sickness' (*þágufallssýki*) is predicted under the assumption that lexical assignments can be simplified. The verb in (31) has lost the feature value [−lr] for the higher argument, consequently, this argument is best realized by DAT, and UNIQUENESS is no longer violated.

(31) <dat acc> verbs with a simplified lexical marking

Mér   vantar   hníf.
me.DAT lacks   knife.ACC
'I lack a knife' (Smith: 683)

$$\lambda y \quad \lambda x \quad \lambda s \quad \text{LACK}(x,y)(s)$$

lexical +hr +hr
default −lr +lr

		ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr,+lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
	ACC ACC			*	*!	*			*	**
	ACC NOM		*!			*	*		*	*
☞	ACC DAT			*				*		**
	NOM DAT		*!				*	*		*

Another class of verbs that needs double marking is the small class of <nom dat dat> verbs, which have the passive pattern <dat dat>, illustrated in (32a) and (32b), respectively. If both objects are marked by [+lr], UNIQUENESS is unable to block double-DAT because it is ranked below of MAX(lexF).[16]

(32) Ditransitive double-dative verbs in Icelandic
    a. Ég   skilaði henni peningunum.
        I.NOM returned her.DAT the money.DAT
        'I returned her back the money'
              λz λy λx λs {ACT(x) & BEC PROMISED(y,z)}(s)
    lexical   +lr   +lr
    default   +hr +hr –hr
                        +lr
    b. Passive:
        Henni   var   skilað   peningunum.
        she.DAT was returned the money.DAT
        'She was given back the money'
              λz λy $\exists x$ λs {ACT(x) & BEC PROMISED(y,z)}(s)
    lexical   +lr   +lr
    default   +hr +hr

The active of the double-dative verbs is evaluated in (33), and their passive in (34).

(33)   Ditransitive double-dative verbs

			ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
	z	y	x									
☞	DAT	DAT	NOM				*			**	*	**
	ACC	DAT	NOM		*!			*		*	**	**
	DAT	ACC	NOM		*!			*		*	**	**

(34)   Passive of ditransitive double-dative verbs

			ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
	z	y									
☞	DAT	DAT			*	*			**		**
	NOM	DAT		*!			*	*	*	*	*
	DAT	NOM		*!			*	*	*	*	*

---

[16] The same result would yield if the medial argument is marked by [+hr].

The passive pattern <dat dat> violates both DEFAULT and UNIQUENESS, similarly to the 2-place double-accusative verbs.

Let us finally consider verbs with genitive. Verbal constructions like that in (35), where the higher argument is marked by genitive, are very rare; they seem to be a relic from the stage where the genitive was regular in negative contexts. Although the single feature [+G] suffices to trigger the <gen nom> pattern, it is unexpected for the highest argument.

(35) Two-place verbal constructions with <gen nom> (Barðdal p.c.)

þess   gerist   ekki   þörf.
this.GEN be.done   no   need.NOM
'There is no need for that'

$$\lambda y \quad \lambda x \quad \lambda s \quad \text{VERB}(x,y)(s)$$

lexical   +G
default   +hr
           −lr   +lr

	y x	ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞	NOM GEN						*		*	*
	ACC GEN			*!					*	**
	ACC NOM		*!						*	*

Because of its inherent specification [+hr], the genitive is more natural for the lower than the higher argument of 2-place verbs. Like German, Icelandic has small but relatively stable classes of <nom gen> as well as <nom acc gen> verbs. Moreover, Icelandic also exhibits <acc gen> and <nom dat gen> verbs. Items of the former class are very rare, a fact that follows from the necessarily complex lexical marking, which is shown in (36).[17]

---

[17] Lexical marking on the higher argument is often avoided by the use of the –st form (the middle), which is rather productive in Modern Icelandic:

(i) Ég   iðrast   þess.
    I.NOM repent   this.GEN

(36) Two-place verbs with <acc gen>

Mig   iðrar   þess.
I.ACC   repents this.GEN
'I repent this'
               λy   λx   λs REPENT(x,y)(s)
lexical   +G   +hr
                    −lr
default   −lr

	y x	ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞	GEN ACC			*						**
	GEN NOM		*!				*			*
	ACC NOM		*!*				*			*
	GEN DAT	*!		*						**

Ditransitive <nom dat gen> verbs have to be marked on two arguments, too, because the DAT remains unchanged in the passive; (37c) is ungrammatical.

(37) Ditransitive verbs with dative and genitive
   a. María   óskaði Ólafi   alls   goðs.
       Mary.NOM wished Olaf.DAT everything.GEN good.GEN
       'Mary wished Olaf all the best'
                   λz   λy   λx   λs {WISH(x, BEC POSS(y,z)}(s)
       lexical   +G   +hr
       default   −lr   +hr   +lr
                        +lr

   Passive:
   b. Ólafi   var óskað alls goðs.
       Olaf.DAT was wished everything.GEN good.GEN
       'Olaf was wished all the best'

   c. *Ólafur   var óskað   alls goðs.
        Olaf.NOM was wished everything.GEN good.GEN
                   λz   λy   ∃xλs {WISH(x, BEC POSS(y,z)}(s)
       lexical   +G   +hr
       default   −lr   +lr

The lexical feature [+hr] for the medial argument is irrelevant for the evaluation of the active in (38).

(38)   Ditransitive genitive verbs

z y x	ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞ GEN DAT NOM							*	*	**
GEN ACC NOM					*!			**	**
ACC DAT NOM		*!					*	*	**

However, this feature becomes crucial in the evaluation of the passive. (39a), in which only [+G] is assumed as a lexical feature, makes the wrong prediction that the pattern <nom gen> arises in the passive. But if [+hr] is assumed as a lexical feature, too, NOM is blocked because of a MAX(lexF) violation, as shown in (39b).

(39)   Passive of ditransitive genitive verbs

[+G] z y	ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
GEN DAT			*!				*		**
💣 GEN NOM					*	*		*	*
NOM DAT		*!				*	*		*

[+G] [+hr] z y	ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
☞ GEN DAT			*				*		**
GEN NOM		* !			*	*		*	*
NOM DAT		*!				*	*		*

Summarizing the analysis of Icelandic, we have found the following additional strategies of lexical marking:
- An argument role can be marked by a feature value identical to the default value in order to escape the effects of other constraints. A lowest argument role can be marked by [+hr], enforcing accusative, in order to escape DEFAULT. Similarly, a medial argument role can be marked by either [+hr] or [+lr], enforcing dative, in order to escape UNIQUENESS.

- The highest argument role can be marked by a feature combination ([+hr,−lr]). which reverses the default feature values ([−hr,+lr]). This

type of marking enforces accusative (rather than nominative or dative) for the highest argument, however, it is now subject to simplification.

- GEN is possible for the highest argument only as a historical relic.

5 Discussion of lexical case marking

5.1 Types of lexical marking in transitive and ditransitive verbs

(40) summarizes the types of lexical marking occurring in ditransitive verbs.

(40)   Lexical marking of ditransitive verbs:

	case pattern	z	y	x	Passive:
German	d1 <nom dat acc>	-	-	-	<dat nom>
	d2 <nom acc dat>	+lr	-	-	<nom dat>
	d3 <nom acc gen>	+G	−lr	-	<nom gen>
	d4 <nom acc acc>	-	−lr	-	<acc nom> / <nom acc>
Icelandic only	d5 <nom dat dat>	+lr	+lr	-	<dat dat>
	d6 <nom dat gen>	+G	+hr	-	<dat gen>
Non-existent		-	+G	-	
		-	-	+Feat.	

For obvious reasons (see footnote 12), the highest argument of a ditransitive verb, which is always agentive (or causative), must not be marked lexically. This corresponds to Fanselow's generalization Gen1. Therefore, this argument is always realized by nominative. Furthermore, the medial argument is never marked for genitive (see footnote 11). The remaining six possibilities are all attested in Icelandic, with the exception that the double-accusative verbs have a predicative argument and are not marked as in German (see above).

The 2-place verbs show a slightly different picture because their higher argument often is non-agentive and, hence, allows lexical marking. The observed types of lexical marking are summarized in (41).

(41) Lexical marking of 2-place verbs:

	case pattern	y	x	Icelandic
German	t1 <nom acc>	-	-	*berja* 'hit'
	t2 <nom dat>	+lr	-	*bjarga* 'rescue'
	t3 <nom gen>	+G	-	*sakna* 'miss'
	t4 <dat nom>	-	+hr	*líka* 'like', *henta* 'please'
Icelandic only	t5 <acc acc>	+hr	+hr,–lr	often simplified to <dat acc>
	t6 <dat acc>	+hr	+hr	
	t7 <acc gen>	+G	+hr,–lr	rare
	t8 <gen nom>	-	+G	very rare
	t9 <acc nom>	-	+hr,–lr	very rare
Non-existent	<dat dat>	+lr	+hr	
	<acc dat>	+lr	+hr,–lr	
	<dat gen>	+G	+hr	found in Old Icelandic
		+Feat.	+G	

Out of 16 theoretical possibilities, Icelandic shows 10, 9 of which have been considered in (41), while <nom nom> is only found with predicative arguments not considered here. Three of the Icelandic types are almost non-existing. The restrictions on lexical marking can be captured by the following tentative constraints:[18]

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[18] The three *INVERSE constraints express different (and partly independent) aspects of the same conceptual background: Avoid (classes of) verbs that have case realizations inverse to each other, unless there are other means to distinguish these verbs. I was not able to integrate these three constraints into a more general one in terms of lexical features. However, I am convinced that constraints on lexical marking (which serves to distinguish lexical classes, thereby overriding the leveling effects of argument ranking) originate from the same conceptual basis as the requirement to distinguish case at all. I cannot see how a syntactic argumentation (as proposed by Fanselow 2000) can solve the issue of restricting lexical marking in principle, apart from the accessory fact that the languages under question have different projections into syntax.

(42) a. *Feature/[+contr]. An agentive argument, exhibiting control over the situation, is unmarked. (Corresponds to Fanselow's Gen1)

   b. *[+G]/[+lr]. Do not mark genitive for a non-lowest role. (A sub-case of Fanselow's Gen2)

   c. *INVERSE1. Do not invert the default assignments of [+hr] and [+lr] by lexical marking.

   d. *INVERSE2. Do not allow the canonical pattern <nom acc> to be inverted.

   e. *INVERSE3. Do not allow the default assignment for the lowest argument role ([+hr,−lr]) to appear on the highest argument role.

As pointed out before, the constraint in (42a) is never violated, and that in (42b) is violated only in the few items left in t8. (42a) is motivated by the fact that the protorole-features of agents already correspond to their position as highest argument role (see footnote 12), and (42b) is motivated by the fact that the genitive entered the verbal domain as a partitive marker (see footnote 11). The other constraints serve to avoid ambiguities. *INVERSE1 excludes the patterns <dat dat> and <acc dat>;[19] it does not exclude d5 and d6 because these verbs are characterized by a different marking (see (32) and (37)).[20] *INVERSE2 is only violated in the rare examples of t9,[21] whereas *INVERSE3 is also violated in t5 and t7 (see (30) and (36)).

   None of the constraints listed in (42) is violated in German. Moreover, all 2-place verbs of German have a NOM argument, corresponding to the fact that the reference to a NOM-argument is more important in syntactic constructions of German than in those of Icelandic (Wunderlich 2000b). Conversely, Icelandic allows both arguments to be non-nominative because the reference to the highest argument is more important than in German. In both languages, only verbs with an unmarked highest argument can be passivized.[22]

   Inverse patterns are not generally excluded: the fact that <nom dat> and <dat nom> can coexist is probably due to quite obvious semantic differences of the respective verbs. Moreover, verbs that belong to the latter class

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[19] For the pattern <dat dat> to arise, the higher role must be marked by [+hr] and the lower role by [+lr]. <acc dat> would need the additional feature [−lr] on the higher role, which would also violate *INVERSE3.

[20] The pattern <dat dat> occurs in the passive of class d5, but is forced there by a different type of lexical marking.

[21] Under this perspective it is very unlikely that one of the alternatives found in the experiencer verbs of German alternating between <nom acc> and <acc nom> with only subtle semantic differences (see footnote 3) is lexically marked.

[22] Most passivizable verbs are agentive, and agents are not marked lexically. Moreover, the suppression of a marked argument would violate MAX(lexF).

(t4) have quite a different syntactic potential from those that belong to the former class (t2). Likewise, symmetric patterns such as <acc acc> are possible in Icelandic, although they violate *INVERSE3; here, the distinction of arguments is made by their sortal properties. It is quite less evident how the hypothetical members of the nonexisting <dat dat> class would have to be distinguished sortally. In sum, Icelandic is more liberal than German with regard to inverse and symmetric patterns, both undermining lexical economy. As has been shown in (29) vs. (30), an inverse <acc nom> pattern (violating *INVERSE2) is easier tolerated under the given constraint ranking than a symmetric pattern <acc acc>; nevertheless, the symmetric pattern has better survived than the inverse one.

Nothing excludes the pattern <dat gen>; in fact, this pattern is found in Old Icelandic, but has now shifted to <dat nom>.[23] The theta-structure for which <dat gen> is optimal is shown in (43).

(43) $\quad\quad\quad$ λy $\quad$ λx $\quad$ λs $\;$ VERB(x,y)(s)

$\quad$ lexical $\quad$ +G $\quad$ +hr

$\quad$ default $\quad$ −lr $\quad$ +lr

		ID(lr)	MAX (lexF)	DEF	UNIQ	MAX (+hr, +lr)	MAX (+hr)	*[+lr]	MAX (+lr)	*[+hr]
	y $\quad$ x									
☞	GEN $\;$ DAT			*				*		**
	GEN $\;$ ACC			*		*			*	**
	GEN $\;$ NOM		*!			*	*		*	*

It is obvious that lexical marking is restricted even in Icelandic; it exploits most of the possible options, but still shows a gap in the <dat gen> class. Nevertheless, the proliferation in lexical marking burdens much to the memory of speakers. The assignment of lexical features for both arguments (even when the lexical feature is identical with the default feature) comes near to the fixing of surface case patterns, which must be learned for each individual verb.

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[23] The following examples are from Jóhanna Barðdal (p.c.):

(i) Old Icelandic: Henni $\quad$ batnaði $\quad$ veikinnar.

$\quad\quad\quad\quad\quad\quad\quad\quad$ she.DAT got.better $\;$ the illness.GEN

(ii) Modern Icelandic: Henni $\quad$ batnaði $\quad$ veikin.

$\quad\quad\quad\quad\quad\quad\quad\quad$ she.DAT got.better $\;$ the illness.NOM

$\quad\quad\quad\quad\quad\quad\quad\quad$ 'She got better from the illness'

5.2 Correlation between active and passive patterns

The claim that the existence of passive patterns correlates with the existence of base verb patterns, which is part of Baker's Case Frame Preservation Principle (CFPP) (see footnote 4), is obviously wrong. There are passive patterns for which no corresponding base verb pattern exists: German intransitive <gen> and transitive <acc nom>, as well as Icelandic transitives <dat dat> and <dat gen>. (There are also base verb patterns for which no corresponding passive pattern exists: Icelandic transitives <acc acc>, <acc gen> , and <gen nom>.)

LDG has no reason to state such a correlation. The underlying features in the passive are assumed to be identical with those in the corresponding active. How these features are realized depends on the constraint ranking. For instance, the passive <dat dat> of the <nom dat dat> verbs results from two [+lr] features, whereas the base verb pattern <dat dat> (not existing in Icelandic) would have to result from the feature values [+lr] and [+hr]. Recall also that I have motivated the feature [+hr] on the medial argument of class d6 verbs (see (37)) by means of data from the passive. According to the CFPP, however, the (non-existing) passive <nom gen> should be preferred over the (actual) passive <dat gen>, which has no counterpart in the simple verbs of Modern Icelandic.
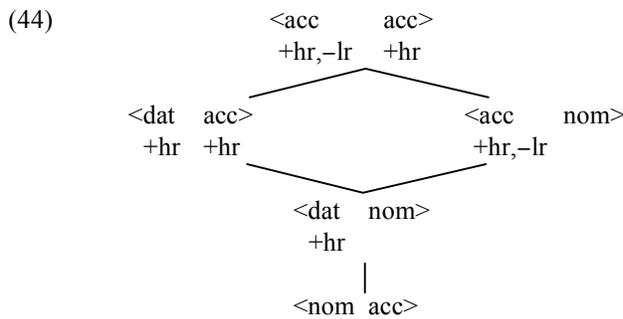
A variant of Baker's principle is Fanselow's claim (2000:196) that the inverted <dat nom> verbs are the unaccusative counterpart to the passive of canonical ditransitive verbs (the latter having an additional 'external' argument that is existentially bound), and therefore do not need any lexical marking. Such a claim cannot be incorporated in the LDG account. Moreover, the majority of Icelandic inverted <dat nom> verbs show restrictions in both the designated argument and the agreement pattern that are not found in the corresponding ditransitive passives of Icelandic (Wunderlich 2000b); these are facts that falsify Fanselow's claim empirically.

Furthermore, nothing excludes an alternation to arise in the passive, even if it is not present in the active. German double-accusative verbs have two passives, as shown in (3), (4), and (19) above, namely <nom acc> or <acc nom> (with the higher argument mentioned first), a fact that is predicted by the constraint ranking. Icelandic passives of canonical ditransitive verbs, belonging to the pattern <dat nom>, alternate between DAT and NOM as the designated argument syntactically. The fact that a subset of the <dat nom> verbs alternate in just the same way as ditransitive passives seems to support Fanselow's claim; however, the fact that the majority of these verbs do not alternate in this way rather falsifies it.

5.3 Synchronic and diachronic variation of case patterns

The account of lexical marking in terms of the feature values [+hr], [±lr] and [+G] makes substantial predictions about possible variations. In section 3, I have already discussed the scenario (25) for the possible variations of ditransitive verbs in German. The discussion here concerns the possible patterns of 2-place verbs, and how they can be arranged such that a variation in terms of simplification in the lexical entries is predicted.

In the first scenario, the Icelandic <acc acc> pattern is taken as the starting point. The tree in (44) shows two branches along them simplification is possible.

(44)

```
                        <acc       acc>
                        +hr,−lr    +hr

        <dat    acc>                        <acc       nom>
        +hr     +hr                         +hr,−lr

                        <dat    nom>
                        +hr
                          |
                        <nom  acc>
```

As already mentioned before, a variation between <acc acc> and <dat acc> for single verbs is found in Modern Icelandic, discussed under the notion of 'dative sickness' (Smith 1994). Examples with the verb *vanta* 'lack' have been given in (28) and (31). Yip, Maling and Jackendoff (1987:231) also note a variation that goes down to the <dat nom> pattern.

(45) a. Mig   brestur kjark.
         I.ACC   lacks   courage.ACC

    b. Mér   brestur   kjark/ kjarkur.
        I.DAT lacks   courage.ACC/courage.NOM
        'I lack courage'

A diachronic variation between <dat nom> and <nom acc> can be observed for many Germanic languages, consider Icel. *líka* <dat nom> vs. Engl. *like*, and the examples in (46) cited from Barðdal (1998).

(46) a. mik   angrar thz.   (Older Swedish)
        I.OBL   regret this.NOM

  b. jag   angrar   det.   (Modern Swedish)
     I.NOM   regret   this.ACC

In German, one can find variations such as those in (47) (diachronically) and (48) (synchronically, with a slight shift in meaning).

(47) a. Mir   ahnte   das.   (Early New High German)
        I.DAT   anticipated that.NOM

  b. Ich   ahnte   diesen   Ärger. (Modern German)
     I.NOM   anticipated this.ACC vexation

(48) a. Mir   schmeckte   der   Braten/?der Thymian.
        I.DAT   enjoyed   the.NOM   roast meat/?the thyme

  b. Ich   schmeckte   den Thymian/?den Braten.
     I.NOM   tasted   the.ACC thyme/ ?the roast meat

Except the single case of <nom acc>/<acc nom> alternation mentioned by Bernódusson for *henda* 'befall' (see footnote 15), there is no evidence for the right branch of (44), probably because the pattern <acc nom> is restricted by *INVERSE2 (see (42d)).

All the variation along the left branch of (44) from the top (most marked) to the bottom (unmarked) is predicted as lexical simplification, but only if dative is decomposed into [+hr,+lr]; otherwise it would be mysterious why ACC shifts to DAT, and then to NOM in the higher argument.
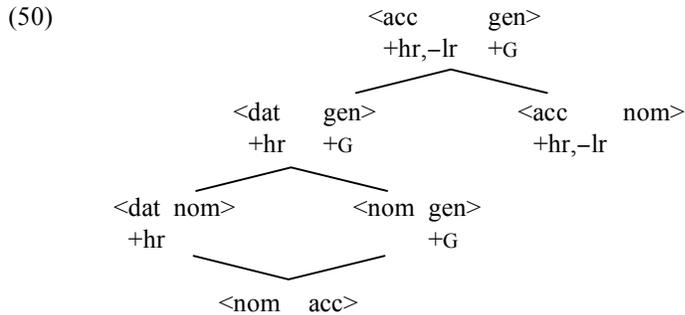
The notion of 'dative sickness' also captures shifts in the intransitive verbs, where it is contrasted with 'nominative sickness'. Consider the following examples from Smith (1994:675f.):

(49) a. Mig   langar   að fara.
        me.ACC   longs   to go

  b. Mér   langar   að fara.
     me.DAT   longs   to go

  c. Ég   langa að fara.
     I.NOM   long   to go
     'I long to go'

Here, the lexical marking shifts from [+hr] (the standard variant) to either [+hr,+lr] or unmarked: only the latter is lexical simplification, while the former is lexical complication. One could suggest that this shift is provoked as overgeneralization of other ACC → DAT shifts for experiencers. However,

the present account is unable to accept 'dative sickness' as a homogeneous process.

Another scenario of possible variations takes the (now quite rare) <acc gen> pattern as its starting point. Possible ways of lexical simplification are shown in (50).

(50)

```
                          <acc      gen>
                         +hr,–lr    +G

          <dat     gen>                <acc        nom>
          +hr      +G                  +hr,–lr

  <dat  nom>          <nom  gen>
   +hr                      +G

              <nom     acc>
```

Recall that <acc nom> is subject to *INVERSE2; in fact, no such variation is known. <acc gen> to <nom gen> (with the middle verb form) is attested for verbs such as *iðra* 'repent' (see footnote 17). Furthermore, <dat gen> to <dat nom> is found diachronically with verbs such as *batna* 'get better' (see footnote 23). Variation between <nom gen> and <nom acc> is found a lot in German, and, as I expect, also in Icelandic. Variation between <dat nom> and <nom acc> has been discussed before. Thus, most of the variation predicted by the left branch of (50) is attested, in one way or other. Only for the variation between <acc gen> and <dat gen> could no evidence be found.

As a final point I would like to emphasize that the present account, using lexical features that are not identical with the morphological cases, and also using general constraints determining the actual case patterns, can make predictions for minimal alternations that are not available in other accounts. However, it is clear that much more investigation is necessary to give enough synchronic, as well as diachronic, evidence to such an approach.

6 Conclusion

In the OT literature (Grimshaw 1997, among others), the view has been established that the peculiarities of the lexicon are determined by the specific ranking of universal constraints. This may be true to a certain extent, namely as long as no particular lexical marking is involved. This study has shown that the opposite is possible, too: German and Icelandic exhibit the same ranking of (putatively universal) constraints for surface case, but differ remarkably in their lexical options. The options of German are only a

subset of those possible for Icelandic. One may say that the constraints in (42) are differently ranked in these two languages: inviolable constraints of German are violable in Icelandic. However, these constraints are part of the lexicon. Hence, the lexicon seems to have its own structure; although it interacts with other structures, it does not only list what these structures determine. The concept of lexical marking, or the question of what are optimal exceptions (Fanselow 2000), is a topic that still deserves further study.

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