Explaining the Ditransitive Person-Role Constraint: A usage-based approach

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Abstract

I propose a usage-based and model-independent explanation of the constraint that in many languages prohibits 1st/2nd person weak pronouns as Themes in ditransitive clauses (e.g. French *Agnès me lui présentera 'Agnès will present me to him'). This constraint (called the Ditransitive Person-Role Constraint here) is found in a large proportion of languages with weak object pronouns, but it is not universal. My explanation starts from the observation that Recipients and 1st/2nd person pronouns tend to be topical and animate, while Themes and 3rd person pronouns tend much less to be topical and animate. The "harmonic associations" are more useful and hence more frequent in discourse, and when independent pronoun combinations get grammaticalized as clitics and affixes, only the more frequent combinations pass the threshold for entering the more rigid domains of grammar. The explanation is thus ultimately diachronic, like all usage-based explanations of language structure. I contrast my explanation with all major alternative proposals, especially recent analyses that appeal to a clash between positional alignment constraints, analyses in terms of "harmonic alignment", and a Stochastic OT version of this analysis. I argue that not even the latter two approaches, which come closest to my own explanation, lead to a similar depth of understanding. Finally, I show that very similar effects are found with other topicality scales such as animate > inanimate and definite > indefinite, so that the Ditransitive Person-Role Constraint is merely a special case of a broader generalization.

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1. Definitions and examples

The goal of this article is to explain the Ditransitive Person-Role Constraint, a constraint on the combination of weak object pronouns whose effects can be observed in many languages. This constraint can be formulated as in (1).

(1) **The Ditransitive Person-Role Constraint (DPRC)**

In combinations of weak pronouns with the roles Recipient and Theme, the Theme pronoun may not be first or second person.

The ungrammaticality of such clitic pronoun clusters in the Romance languages has been known for a long time (e.g. Meyer-Lübke 1899:§378), and analogous restrictions have also been reported from other languages such as Slavic and Balkan languages. In (2-4) as well as in other examples below, the (a) sentence shows a well-formed combination of clitic pronouns, and the (b) sentence shows an ill-formed combination. (The notation "\((n>m)\)" is to be read as "nth person Recipient, mth person Theme."

(2) French (e.g. Grevisse 1986:§657 (b) 1°)

a. \((1>3)\) *Agnès me le présentera.*
   Agnès 1SG.REC 3SG.M.THM present.FUT.3SG
   'Agnès will present it to me.'

b. \((3>1)\) *Agnès me lui présentera.*
   Agnès 1SG.THM 3SG.M.REC present.FUT.3SG
   'Agnès will present me to him.'

c. *Agnès me présentera à lui.*
   Agnès 1SG.THM present.FUT.3SG to him
   'Agnès will present me to him.'

(3) Modern Greek (Anagnostopoulou 2001; cf. also Warburton 1977)

a. \((2>3)\) *Tha su ton stílune.*
   Fut 2SG.REC 3SG.M.THM send.PF.3PL
   'They will send him to you.'

b. \((3>2)\) *Tha tu se stílune.*
   Fut 3SG.M.REC 2SG.THM send.PF.3PL
   'They will send him to you.'

c. *Tha tu stílune eséna.*
   Fut 3SG.M.REC send.PF.3PL you.OBL
   'They will send him to you.'

(4) Bulgarian (Hauge 1999 [1976]: ...; cf. also Vasilev 1969)

a. \((3>3)\) *Az im ja preporâ&am.*
   1 3PL.REC 3SG.F.THM recommend.PRES.1SG
   'I recommend her to them.'
b. (3>2) *Az im te preporâc&am.
   I 3PL.REC 2SG.THM recommend.PRES.1SG
   'I recommend you to them.'

c. Az te preporâc&am na tjah.
   I 2SG.THM recommend.PRES.1SG to them
   'I recommend you to them.'

The Ditransitive Person-Role Constraint is clearly a formal, not a semantic constraint. From a semantic point of view, there is nothing wrong with (2-4) (b): If a circumlocution with a strong pronoun is used instead of a combination of two weak pronouns, as in (2-4) (c), perfectly grammatical sentences result.

The above examples involve clearly segmentable "clitic" pronouns, but the effects of the DPRC have also been observed in languages with affixal marking of both Recipient and Theme. Such languages typically exhibit gaps in their morphological paradigms at the relevant positions. Since Addis (1993) and Bonet (1994), it has been recognized that the ban on certain clitic clusters (as in 2-4) and the gaps in morphological paradigms (as in 5-7) represent the same phenomenon. The term "weak pronoun" in 1 should be taken in a broad sense, subsuming affixal pronominal markers as well as clitic pronouns.1

(5) Standard Arabic (Fassi Fehri 1988:116)
   a. (1>3) ?aït?y-ta-nii-hi
      give-2SGM.AG-1SG.REC-3SGM.THM
      'You gave it/him to me.'
   b. (3>2) ?aït?y-tu-huu-ka
      give-1SG.AG-3SGM.REC-2SGM.THM
      'I gave you to him.'
   c. ?aït?y-tu-hu ?iyyaa-ka
      give-1SGAG-3SGMREC_ACC-2SGM
      'I gave you to him.'

(6) Basque (Addis 1993:448-49; cf. also Albizu 1997)
   a. (3>3) Edu-k neska Toni-ri aipatu d-io.
      Edu-ERG girl.ABS Toni-DAT mention 3ABS-DAT.3ERG
      'Edu has mentioned the girl to Toni.'
   b. (3>1) *Edu-k ni Toni-ri aipatu ???.
      Edu-ERG I.ABS Toni-DAT mention 1ABS-DAT.3ERG
      'Edu has mentioned me to Toni.'

1 A recent trend in the study of clitic pronouns in the Romance and Balkan languages has been to argue that the traditional "clitics" are in fact affixes, and that the restrictions on pronoun clusters fall in the domain of morphology rather than syntax (e.g. Kaiser 1993, Bonet 1995, Miller & Sag 1997). Since I do not make any specific assumptions about the properties of morphology and syntax, this issue can be left aside in the present paper.
c. *Edu-k ne-re aipamena Toni-ri egin d-io.*
   Edu-ERG I-GEN mentioning Toni-DAT do 3ABS-3DAT.3ERG
   'Edu has mentioned me (lit. made my mentioning) to Toni.'

(7) Kera (East Chadic; Ebert 1979:§5.1)
   a. (1>3) *Yaak-an-d’r.*
      leave-1SG.REC-3.THM
      '(He/she) leaves it/them to me.'
   b. (3>1) *Yaak-an-dù.*
      leave-1SG.THM-3SG.M.REC
      '(He/she) leaves me to him.'
   c. *W’ yaak-an á tó.*
      he leave-1SG.THM to him
      'He leaves me to him.'

(8) Shambala (Bantu-G, Tanzania; Duranti 1979:36)
   a. (1>3) *A-za-m-ni-et-ea.*
      3SG.SUBJ-PAST-3SG.THM-1SG.REC-bring-APPL
      'S/he has brought him/her to me.'
   b. (3>1) *A-za-ni-mw-et-ea.*
      3SG.SUBJ-PAST-1SG.THM-3SG.REC-bring-APPL
      'S/he has brought me to him/her.'
   c. *A-za-ni-eta kwa yeye.*
      3SG.SUBJ-PAST-1SG.THM-bring to him/her
      'S/he has brought me to him/her.'

The Ditransitive Person-Role Constraint has been described for many other languages than those exemplified here. A list of languages and references is given in Table 1.

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2 In Basque, a circumlocution with strong pronouns is not an option for rescuing sentence 6b, because the ditransitive verb obligatorily agrees with all three arguments, including strong pronouns. Thus a different circumlocution has to be chosen. Addis (1993) discusses further possible circumlocutions.
Spanish Romance e.g. Perlmutter 1970, 1971
Catalan Romance e.g. Bonet 1994:33, 35
Italian Romance e.g. Seuren 1976, Wanner 1977
Romanian Romance e.g. Farkas & Kazazis 1980
Czech Slavic Denisa Lenertová, p.c.
Maltese Semitic Borg & Azzopardi-Alexander 1997:360
Georgian Kartvelian Harris 1981
Lai Chin, Tibeto-Burman Peterson 1998
Kambera Central Malayo-Polynesian Klamer 1997:903
Manam Oceanic, Aistronesian Lichtenberk 1983:162, 166
Yimas Sepik-Ramu Foley 1991:210
Monumbo Torricelli Vormann & Scharfenberger 1914:53
Warlpiri Pama-Nyungan Hale 1973:334
Ojibwa Algonquian Rhodes 1990:408
Passamaquoddy Algonquian Leavitt 1996:36
Southern Tiwa Kiowa-Tanoan Allen et al. 1990
Tetelcingo Nahuaatl Uto-Aztecan Tuggy 1977

Table 1: Additional languages exemplifying the Ditransitive Person-Role Constraint

Bonet (1994:40) concludes from its widespread attestation that the constraint is universal, but we will see below (§2.4) that not all languages obey it.

The name "Ditransitive Person-Role Constraint" which I have chosen was inspired by Bonet's (1994) term "Person-Case Constraint". I have added "ditransitive", because there is also an analogous monotransitive constraint on person-role associations, ruling out straightforward combinations of third person agents and first or second person patients in some languages. And I have replaced "case" by "role" because the constraint is by no means restricted to languages such as French whose clitic pronouns are described in terms of the case names dative (for Recipient) and accusative (for Theme). In some languages, different cases are used for Theme and Recipient pronouns (e.g. absolutive for Theme in Basque, and genitive for Recipient in Modern Greek), and many languages have no case-marking at all and still show the effects of the DPRC. A less language-particular solution would be to formulate the constraint in terms of syntactic functions such as "indirect object" and "direct object", but again this is not general enough because some languages that are subject to the constraint (e.g. Ojibwa) operate with a primary object/secondary object distinction rather than with a direct object/indirect object distinction (Dryer 1986). And in many cases the syntactic function of a pronoun is not immediately clear. Consider (9a) from Manam, where the verb form shows two object suffixes and a benefactive applicative suffix. The Theme

1 Another term sometimes found in the literature is "me lui constraint" (e.g. Laenzlinger 1993, Ormazabal & Romero 1998).
4 In some languages with a direct-inverse system, the specially marked inverse forms must be used under such circumstances (e.g. in some Algonquian languages such as Cree), and in other languages the specially marked passive form must be used (e.g. in some Salishan languages such as Lummi). See Aissen (1999) for recent discussion.
object suffix \(-i\) agrees with \(nátu\) 'child', and the first person singular object suffix \(-a\) is the applied object, hence presumably the direct or primary object. However, it is not this object, but the Theme object that may not be first or second person, as (9b) shows. (Again, only a circumlocution involving the benefactive postposition \(-lo\) renders the sentence grammatical, cf. 9c.)

(9) Manam (Lichtenberk 1983:162, 166)
   a. (1>3) \(nátu\ go-ru?u-í-an-a\)
      child 2SGA-wash-3SG-T-BEN-1SGR
      'Wash the child for me.'
   b. (1>2) *\(da-úN?o-n-a\)
      3PLA-beat-2SGT-BEN-1SGR
      'They will beat you up for me.'
   c. \(Nnu-lo\ da-úN?o\)
      me-BEN 3PLA-beat-2SGT
      'They will beat you up for me.'

The role terms Theme and Recipient have to be understood as macro-roles (hence the capitalization), so that Recipient, for instance, comprises not only the recipient in the narrow sense, but also the addressee and the beneficiary, and in some languages also the causee of causative constructions which is coded like recipients in the narrow sense. Thus, in French and Basque causative constructions, the DPRC applies as it does in ordinary ditransitive clauses:

(10) French (Roegiest 1987:153)
   a. \(Il\ l’ amène au médecin\)
      he 3SG.F.THM leads to the doctor
      \(pour\ la\ lui\ faire\ examiner.\)
      for 3SG.F.THM 3SG.REC cause examine
      'He takes her to the doctor in order to have her examined by him.'
      (lit. 'to make him examine me')
   a. *\(Il\ m’ amène au médecin\)
      he 1SG.THM leads to the doctor
      \(pour\ me\ lui\ faire\ examiner.\)
      for 1SG.THM 3SG.REC cause examine
      'He takes me to the doctor in order to have me examined by him.'

(11) Basque (Addis 1993:452)
   a. \(Edu-k\ Toni-ri neska deskríbatu arazi d-io.\)
      Edu-ERG Toni-DAT girl.ABS describe cause 3ERG-3DAT(3ABS)
      'Edu has made Toni describe the girl.'
   b. *\(Edu-k\ Toni-ri ni deskríbatu arazi d-io-en.\)
      Edu-ERG Toni-DAT 1.ABS describe cause 3ERG-3DAT-1ABS
      'Edu has made Toni describe me.'

Thus, the Ditransitive Person-Role Constraint is best described as in (1), at least at the level of cross-linguistic comparison which is at the center of
interest in this article. The corresponding constraints that individual languages have in their grammars may well make reference to language-particular concepts such as accusative or genitive or secondary object. What counts in the present contexts is that these language-particular constraints are highly similar at a more abstract level in a way that cannot be accidental, and that the shared properties of the language-particular constraints are best described as in 1.

In the next section (§2), I will discuss earlier attempts at explaining the DPRC, and in §3 I will offer my own explanation, which is based on harmonic associations of persons and roles (based on shared animacy and topicality propensities), asymmetries of usage frequency that follow from these, and diachronic filtering of rare construction in grammaticalization.

2. Earlier attempts at explanation

2.1. Language-particular stipulation

The Ditransitive Person-Role Constraint has seemed puzzling to many linguists. Perlmutter (1971:28) frankly states: "It is not clear why these sentences are ungrammatical", and this is echoed by Kayne (1975:174): "The ungrammaticality of [combinations like *me lui] still needs to be explained." Almost two decades after Perlmutter, Cardinaletti (1999:69) finds the DPRC "still highly mysterious", and Bonet (1994:51) throws up her arms in despair: "[W]hy should languages have such a weird morphological constraint? This question might never be answered."

Thus, some theoretically oriented works have proposed simple language-particular stipulations and stopped there. For instance, Warburton (1977:276) posits a "positive surface constraint [+Person][–Person]" for Modern Greek clitic clusters. In her notation, "+Person" means first or second person, and "–Person" means third person, so this says that the first clitic (the Recipient) can be any person, but the second clitic (the Theme) must be third person. Warburton’s constraint thus amounts to exactly the same as 1. Similarly, Miller & Sag (1997:...) formulate the following constraint for French: "If SL-2 or SL-6 is nonempty, then SL-4 is empty." ...

Such language-particular stipulations are clearly needed (see §2.4 below), and the question of how to formulate them best for each individual language is not devoid of interest. But since so many languages have so highly similar constraints, they cannot be accidental, and many linguists will ask: Why?

2.2. Ambiguity avoidance

The earliest explanation known to me is Meyer-Lübke’s (1899:§378) and Gamilscheg’s (1957:126-7) account of the ungrammaticality of *Agnès me te présentera [Agnès me you will.present] ‘Agnès will present me to you’ in French. They note that in modern French, the clitic order is sometimes
Theme-Recipient and sometimes Recipient-Theme. Since first and second person pronouns do not have distinct dative and accusative forms, *Agnès me te présentera could mean 'Agnès will present me to you' or 'Agnès will present you to me'. In order to avoid this ambiguity, French requires the use of strong pronouns (*Agnès me présentera à toi for the first case, *Agnès te présentera à moi for the second case). Unfortunately, this account does not extend to unambiguous combinations with 3rd person Recipients such as 2b. But even worse, it does not extend far beyond French: Many languages have fixed Recipient-Theme order and distinct forms for Recipient and Theme, but still show the DPRC effects (e.g. Modern Greek). Clearly, we need an explanation that does not depend on language-particular details.

2.3. A ban on doubly filled slots

For French, structural linguists have often set up three structural slots for preverbal clitic pronouns: One for first, second and reflexive clitics (whether accusative or dative), one for third person accusative clitics, and one for third person dative clitics, as shown in (12) (see, e.g., Togeby 1982:400).

(12)

<table>
<thead>
<tr>
<th>ACC/DAT</th>
<th>ACC</th>
<th>DAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>me_SG</td>
<td>le_SG_M</td>
<td>lui_SG</td>
</tr>
<tr>
<td>te_SG</td>
<td>la_SG_F</td>
<td>leur_PL</td>
</tr>
<tr>
<td>se_REFL</td>
<td>les_PL</td>
<td></td>
</tr>
<tr>
<td>nous_PL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vous_PL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Togeby (1982:401), the reason for the ungrammaticality of clusters such as *me\_DAT te\_ACC 'you to me' or *vous\_DAT me\_ACC 'me to you (pl)' is that all these pronouns must occupy the same slot, so they cannot cooccur. Emonds (1975) extends this kind of account to ungrammatical clusters like *me\_ACC lui\_DAT 'me to him/her' by arguing that underlyingly the clitics of the first and third slot in 11 occupy a single slot, from which only a single element can be selected. It is of course possible that speakers arrange clitics in such slots in their mental grammars, but this explanation implies another question: Why should languages arrange their clitic pronouns in such structural slots in the first place? And why do the slots contain the elements they contain? And again, like the explanation of (§2.2), this explanation cannot be extended easily beyond French.

2.4. The constraint is inviolable and innate

Having noted that DPRC effects are found widely across languages, Bonet (1994:43-44) concludes that "the [Person-Case Constraint] ... has to be understood as a universal constraint which .. is ranked highest in the grammars of all languages". Since she works in an Optimality theory
framework, this presumably implies that the constraint is considered to be innate.

While the list of languages that show DPRC effects is indeed long, there are also languages that do not obey the constraint. For instance, Polish has clitic pronouns which clearly contrast with strong pronouns (e.g. *mi* vs. *nnen* 'me.DAT', *cie* vs. *ciebie* 'you.ACC'), but these clitics can be used when the Theme (i.e. the accusative object) is a first or second person pronoun (Tomasz Bańk and Bożena Cetnarowska, p.c.).

(13) **Konstancja** mi cie je lecze nie przedstawia.

Konstancja me.DAT you.ACC still not presented

'Konstancja has still not presented you to me.'

DPRC violations are also found in languages with affixal rather than clitic object pronouns. Four examples of such languages are given in (14)-(17).

(14) Kabardian (Kumaxov & Vamling 1998:34)

(3>2) *w-je-s-te-n-s'

2SGT-3SGR-1SGA-give-FUT-ASSRT

'I will give you to him.'

(15) Lakhota (Van Valin 1977:....)

(3>2) *ni-wicha-wa-k?u

2SG.THM-3PL.REC-1SG.AG-give

'I give you to them.'

(16) Noon (Northern Atlantic, Senegal; Soukka 2000:207)

(3>2) *mi teeb-pi-raa

I present-3SG.REC-2SG.THM

'I present you to her.'

(17) Haya (Bantu-J, Tanzania; Duranti 1979:40)

(3>1) *A-ka-mu-n-deet-ela.

3SG.SUBJ-PAST-3SG.REC-1SG.THN-bring-APPL

'S/he brought me to him.'

(or: 'S/he brought him/her to me.')

In addition, Vamling (1988:316-17) claims that such combinations are possible in Tbilisi Georgian, contrary to what is reported in Hariis (1981).

This means that the DPRC is not a universally inviolable constraint. However, it is still universal, but only as a preference (in the sense of Vennemann 1983, 1988), which may or may not be reflected in a given language. A preference is universal if no language shows the opposite preference, so that it can be reformulated as an implicational universal. The implicational universal corresponding to the DPRC is formulated in (18).

(18) If a language allows some combinations of weak Recipient-Theme pronouns, the Theme may be third person.
More informally, (17) says that no language shows "anti-DPRC effects". I know of no counterexamples to this universal. Thus, we can maintain that the DPRC is a universal constraint or preference, and we can keep looking for a universal explanation.\footnote{In OT, it is generally assumed that constraints are universal. This is plausible for constraints that correspond to preferences in my sense (such as NOCODA, ...), but it is not plausible for constraints that have no corresponding implicational universals, such as alignment constraints.}

Of course, the possibility that the DPRC is an innate but violable constraint cannot be ruled out. But it is also clear that if a constraint is violable, it becomes more difficult to argue that it is innate. I assume on general methodological grounds that an explanation that does not involve innate structures is preferable to one that requires them, other things being equal. (The justification for this methodological decision should be obvious: If we have an explanation that makes no reference to innate structures, we have gained additional knowledge, but if we just say that a constraint is innate, we admit that this is where our knowledge stops.)

2.5. A clash between positional alignment requirements

Duranti (1979) and Gerlach (1998ab, 2001) offer an explanation of DPRC effects in terms of a clash between positional alignment requirements. Duranti discusses several Bantu languages (in particular Shambala, cf. (8)), and Gerlach discusses Romance and Modern Greek. In the following, I will focus on Gerlach’s more recent analysis (which was apparently arrived at independently of Duranti).

The basic idea is that sentences with DPRC violations are ungrammatical because they are unable to simultaneously fulfill two conflicting requirements of ordering. On the one hand, first and second person clitics should occur on the left in clitic sequences, and on the other hand, indirect-object clitics should occur on the left in clitic sequences. This is expressed by the alignment constraints in (19) (Gerlach 1998:47,49; 2001:131). (In the constraint names, "ALIGN-L" stands for 'align left', "+1" and "+2" stand for 1st and 2nd person, "+lr" effectively means 'indirect object', and CS stands for 'clitic sequence'.)

\begin{align}
(19) & \quad \text{ALIGN-L (+1, CS): 1st person clitics are initial in a clitic sequence.} \\
& \quad \text{ALIGN-L (+2, CS): 2nd person clitics are initial in a clitic sequence.} \\
& \quad \text{ALIGN-L (+lr, CS): Indirect object clitics are initial in a clitic sequence.}
\end{align}

Romance and Modern Greek sentences that are blocked by DPRC violate at least one of these constraints, because when the direct object is first or second person, then both the direct object and the indirect object should be in the initial position in the clitic sequence, which is impossible. In addition to the alignment constraints, Gerlach (2001:69) also posits a faithfulness constraint that requires an argument to be expressed morphologically as a clitic:
(20) MAX(arg)M: An argument role has a morphological correspondent (i.e. a clitic or an affix) in the output.

Given the constraint ranking ALIGN-L (+1, CS), ALIGN-L (+2, CS), ALIGN-L (+Ir, CS) >> MAX(arg)M, it follows that DPRC-violating clitic sequences are less optimal than sequences in which only one clitic is realized. In the tableaux in (21), we see that the well-formed Modern Greek sequence *mu to* violates none of the constraints (cf. 21a), whereas the ill-formed sequences *me tu* and *tu me* violate at least one of them. The candidate with only one clitic, *me*, violates MAX(arg)M, but it emerges as optimal.

(21) Modern Greek (cf. Gerlach 1998a: 58, 60)

<table>
<thead>
<tr>
<th>a. Input: 'it to me'</th>
<th>ALIGN-L(+1,CS)</th>
<th>ALIGN-L(+Ir,CS)</th>
<th>MAX(arg)M</th>
</tr>
</thead>
<tbody>
<tr>
<td>* mu to  ('to-me it')</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>to mu  ('it to-me')</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>to  ('it')</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b. Input: 'me to him'</th>
<th>ALIGN-L(+1,CS)</th>
<th>ALIGN-L(+Ir,CS)</th>
<th>MAX(arg)M</th>
</tr>
</thead>
<tbody>
<tr>
<td>me tu  ('me to-him')</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>tu me  ('to-him me')</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* me  ('me')</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This analysis works well for Romance and Modern Greek, but it cannot explain the DPRC as a universal preference, because different languages show different orderings of recipient and theme pronouns, and the ordering does not correlate with the presence or absence of DPRC effects. Thus, Noon weak pronouns occur in the order Recipient-Theme but show no DPRC effects (cf. 16), whereas Shambala weak pronouns do show DPRC effects but have the order Theme-Recipient (cf. 8).

Moreover, unless a principled reason is given why only the constraints in (19)-(20) exist, Gerlach's analysis does not entail the prediction that no "anti-DPRC effects" will be found in any language. By positing constraints that force rightward alignment of Recipient or of first and second pronouns, one could easily describe a language with "anti-DPRC effects" that violate the universal in (18). One might be tempted to look for general principles that favor leftward alignment of recipients and first/second person pronouns, but in fact there is no evidence for a bias in the cross-linguistic

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6 It also works for Classical Arabic, and in fact an analysis of Arabic DPRC effects in terms of a general principle "first (and second) person precedes 3rd person" was proposed over twelve hundred years ago by Sibawaihi (d. 793) in §211 of Al-Kitaab (see Gensler 1998:278-80 for a translation of this passage of Sibawaihi’s work, and Gensler 1998:240-45 for discussion)

7 Gerlach does make a suggestion in this direction, relating the constraints to two well-known hierarchies or scales: "the clitic which is high either in the animacy hierarchy ... or in the argument hierarchy ... occurs on the left edge of a clitic sequence" (2001:130; cf. 1998a:46). It is still not clear why high position on these hierarchies should correlate with initial order, and in any event, this observation is not incorporated into the formal analysis.
distribution. Gensler (to appear), in a cross-linguistic study of 30 languages with weak Recipient and Theme pronouns, found that there is no general preference for either recipient-theme or theme-recipient order.

Thus, Gerlach’s (and Duranti’s) analysis sheds no light on why the DPRC as a universal preference should exist, and one might even say that this makes her analysis of Romance and Modern Greek somewhat suspect, because it establishes no link between the ungrammaticality of DPRC-violating sentences in these languages and the DPRC.

2.6. Harmonic alignment of person and role scales

Finally I come to the explanation that comes closest to my own explanation of all those found in the literature. The basic idea here is that DPRC-violating sentences show a lack of harmony between two hierarchies or scales which are supposed to show harmonic alignment (this term is from Prince & Smolensky 1993:136). The two relevant scales are the animacy scale and the semantic role scale:

(22) **animacy scale:**
1st/2nd person > 3rd person pronoun > proper noun > human >
animal > inanimate

**semantic role scale:**
Agent > Recipient > Patient/Theme

These scales are so well known from the literature (e.g. Croft 1990:104, Givón 1984:139, Aissen 1999) that no further discussion is necessary here. For our purposes, only the sub-scales "1st/2nd person > 3rd person" and "Recipient > Theme" are relevant. The two scales are the most in harmony of the first/second person pronoun is a Theme and the third person pronoun is a Recipient, and they are the most in disharmony if the first/second person pronoun is a Theme and the third person pronoun is a Recipient.

I know of three places in the literature where such an explanation of DPRC effects is proposed. None of them uses Prince & Smolensky’s term "harmonic alignment" or an optimality framework, but the basic idea is quite clearly present in all three of them. None of these studies has become widely known, and the later ones do not refer to the earlier ones.

Farkas & Kazazis (1980:78) write, with reference to Romanian:

"[I]n the Romanian clitic system, the case hierarchy [Ethical > Goal > Theme] and the personal hierarchy [1 > 2 > 3] are not supposed to conflict. Where there is no conflict..., the string is grammatical. Where there is strong conflict..., the sequence is unacceptable..."

And Parodi (1998: 98-99) writes, with reference to Spanish:

"What we end up with is a joint conditioning of clitic ordering by case and person. The hierarchy of syntactic functions and argument structure [i.e. A > R > T] has to be observed; the specificity hierarchy [i.e. 1/2 > 3] must be observed as well and
in the same direction. The hierarchies are not allowed to cross; ... This means that in order for a sequence of two clitics to be allowed, the argument which is higher in the specificity hierarchy must have a 'higher position in terms of case.'

Rosen (1990) is the only author who develops the idea of scale alignment in some detail, proposing a novel formalism and two specific hierarchies for Southern Tiwa (Kiowa-Tanoan, New Mexico) (the original work on Southern Tiwa, on which Rosen's analysis is based, is reported in Allen et al. 1990):

"A salient feature of Southern Tiwa is the hierarchical principle whereby, in each clause, final term relations must align in a certain way with person/animacy categories. The categories that figure in the hierarchy are listed in [i]...

[i] a. Relations ...
   Ergative Dative Absolutive

b. Person and animacy categories:
   Sole Animate 1st/2nd person 3rd person Inanimate
   or HiSpecific” (Rosen 1990:675)

Aissen (1999) offers a detailed OT-based analysis of a similar kind of phenomenon that was briefly mentioned earlier: In some languages, e.g. in the Coast Salish language Lummi (cf. Jelinek & Demers 1983), we see the effects of a "monotransitive person-role constraint" that requires first and second person pronouns to be agents in the active construction (cf. 23a). If they are patients, the basic active construction cannot be used (cf. 23b), and a circumlocution with the passive voice has to be used (cf. 23c):

(23) Lummi (Jelinek & Demers 1983:168)
a. (1>3) *x56t-s’ n c’ sw'y?q’?
   know-TR-1SG.SUBJ the man
   'I know the man.'

b. (3>1) *x56t-0N’s-s c’ sw’y?q’?
   know-TR-1SG.OBJ-3SG.SUBJ the man
   'The man knows me.'

c. x56t-Ns’ n c’ sw’y?q’?
   know-TR-PASS-1SG.SUBJ by the man
   'I am known by the man.'

For her formal analysis, Aissen adopts Prince & Smolensky’s notion of harmonic alignment. For her analysis of Lummi, she aligns the upper part of the Animacy Scale (1,2 > 3) with the Grammatical Relation Scale (a close relative of the Semantic Role Scale: Subject > Object), which yields the harmony scales in (22), with two corresponding "constraint sub-hierarchies" (Aissen 1999:681-2, slightly modified). (The connective ‘⊃’ is to be read as 'more harmonic than'.)
The grammatical constraints are derived from the harmony scales by prefixing the star ('avoid') and inverting the rankings. The result is a set of constraints whose most important property is their fixed, universal ranking: *Subj/3 is ranked over *Subj/1,2, and *Obj/1,2 is ranked over *Obj/3, in all languages. A set of such universally ranked constraints is called a "sub-hierarchy". In addition, constraints derived from aligning the Grammatical Relation Scale with the Semantic Role Scale are used in Aissen's analysis, especially *Subj/Pat, which penalizes passive constructions, where the subject is a patient.

Thus, in Lummi the sentence (23a) is ungrammatical because *Obj/1,2 is ranked higher than *Subj/Pat, so that the passive construction is the optimal candidate:

It is not difficult to construct an analogous analysis of DPRC effects, using the Animacy Scale (1,2 > 3) and the Semantic Role Scale (Recipient > Theme). the harmony scales and the universal constraint sub-hierarchies are shown in (26), which is directly modeled on (24).

We need a further constraint that penalizes strong pronouns, other things being equal (this may be called AVOID PRONOUN). The only additional assumption we need to make is that the constraints derived from the harmony scales only apply to weak pronoun combinations. Now the ungrammaticality of the French sentence (2b) can be accounted for by the constraint ranking *Thm/1,2 >> AVOID PRONOUN, as is illustrated in Tableau (27).
An analysis of this type scores well on several counts. It incorporates the insight, which I believe is fundamentally correct, that DPRC-violating sentence are bad because they show a lack of harmony between two scales that "need" to be in harmony. It accounts for the fact that the DPRC is not universal: If AVOID PRONOUN is ranked higher than *Thm/1,2, then a language of the Kabardian or Lakhota type emerges. And it expresses the fact that the DPRC is a universal preference: Languages showing the opposite preference are impossible, because *Thm/3 is universally ranked below *Thm/1,2.

However, the harmony-based explanations by Farkas & Kazazis, Rosen and Parodi, the Aissen-style analysis of DPRC effects just outlined, and Aissen’s (1999) analysis of the monotransitive person-role constraint all have a number of basic defects which makes them at best incomplete:

First, no principled account is proposed for the directionality of the harmonic alignment. Why is Recipient associated with first and second person, and Theme with third person? Why not the other way round? Rosen and Parodi have nothing to say about this, Farkas & Kazazis restrict themselves to a few sketchy remarks (cf. §4 below), and Aissen simply presupposes the direction of the harmonic alignment of the animacy and semantic role scales. She repeatedly refers to the "markedness" of person/role combinations as if it explained something:

"Local persons are not inherently less marked than 3rd: they are less marked qua (transitive) subjects and more marked qua objects... Expressing this generalization, which I assume to be universal, requires that the person scale and the relational scale be brought into alignment..., for it is particular associations of person and grammatical function which are relatively marked or unmarked." (Aissen 1999:679-80)

Evidently what needs to be explained is the direction of the alignment of the scales. If one wishes, one may then call the disharmonic combinations "marked", but "markedness" is neither an observational nor an explanatory concept, so it does not help us here.

Second, no account is proposed for the choice of scales that are aligned harmonically. Why isn’t the role scale aligned harmonically with the number scale (singular > plural > dual > trial) or the agreement hierarchy (adjective > relative pronoun > anaphoric pronoun; Corbett 1979), for instance? Unless it can be shown that there is some intrinsic connection between the two scales, the explanation is not complete.

Third, it does not follow from anything that there should be a mechanism of harmonic alignment and fixed constraint hierarchies in universal grammar in the first place, even in Optimality Theory, where this
mechanism can be incorporated relatively straightforwardly. If an analysis is available that does not need these mechanisms, it should be preferable.

Finally, we must explain why the DPRC applies only to weak pronouns and not to strong pronouns. Neither Farkas & Kazazis nor Rosen nor Parodi have anything to say about this.

3. A usage-based explanation

3.1. Usage-grammar correspondences

My own explanation is different from the earlier explanations in that it is explicitly proposed as a grammar-external explanation. I claim that we need to look at patterns of language use, more precisely frequency distributions in language use, to be able to explain the universal preference that was formulated in (1) as the Ditransitive Person-Role Constraint. The explanation thus clearly contrasts with §2.1 (stipulation), §2.3 (ban on doubly filled slots), §2.5 (clash between alignment requirements) and §2.6 (harmonic alignment of scales), which are grammar-internal explanations (cf. Newmeyer 1998a:§3.3-4 for a discussion of these two types of explanation). The explanation in §2.4 (innateness) is also grammar-external, but as such it is very shallow, because we do not know why such a constraint should be innate, and there is no independent evidence for this explanation.

Thus, I do not appeal to the "theory of grammar" or Universal Grammar in my explanation, in line with Newmeyer’s (1998b) claim that typological generalizations and grammatical theory are two domains of study that are independent of each other and not directly relevant to each other. I fully agree with Newmeyer that "UG tells us what a possible human language is, but not what a probable human language is" (1998b:164). Typological generalizations such as those that have led to the animacy/person scale and to the role or relation scales, and likewise generalizations such as the DPRC, tell us which languages are probable, less probable and so improbable that we do not expect to find them. Universal Grammar is not relevant to explaining them.

Usage-based (or performance-based) explanations typically start out from the observation that the same kind of construction exhibits categorical grammaticality constraints in some languages and statistical preferences in other languages. For instance, Givón (1979:26ff.) observes that many languages prohibit referential indefinite NPs in subject position, while others allow them but still show an overwhelming preference for definite subject NPs. Hawkins (1994) shows that the constituent order patterns predicted by his Early Immediate Constituents principle show up as frequency skewings in some languages and as competence restrictions in others. And Bresnan et al. (2001) observe that some languages (such as

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4 This issue does not arise in Aissen’s (1999) analysis of Lummi, because in Lummi it is a passive circumlocution, not a circumlocution involving a strong pronoun, that rescues the problematic person-role combination.
Lummi, cf. 23) do not allow passives with first or second person agents, while other languages (such as English) show a significantly depressed frequency of passives with first or second person agents.

The centerpiece of my explanation of the DPRC is the analogous observation that even in languages where the DPRC does not lead to the ungrammaticality of the disfavored pronoun combinations, these combinations are still much rarer than the favored pronoun combinations. One such language is German. The parallelism between French and German is shown in (28).

<table>
<thead>
<tr>
<th></th>
<th>favored combination</th>
<th>disfavored combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
<td>grammatical:</td>
<td>ungrammatical:</td>
</tr>
<tr>
<td></td>
<td>*Agnès me lui présentera.</td>
<td>*Agnès me lui présentera.</td>
</tr>
<tr>
<td>German</td>
<td>frequent:</td>
<td>infrequent:</td>
</tr>
<tr>
<td></td>
<td>*Agnès stellen mir ihn vor.</td>
<td>*Agnès stellen ihm vor.</td>
</tr>
</tbody>
</table>

I will discuss the evidence for the German frequency differences in §4 and take it for granted in the following discussion.

### 3.2. Grammaticalization

Functionalists have sometimes been content with pointing out such usage-grammar correspondences, because they confirm the expectation that "grammars do best what speakers do most" (Du Bois 1985). But this would be a sufficient explanation only if grammars were designed by a conscious and benevolent creator. In reality, of course, languages are constantly (re-)created by speakers (especially acquiring children, but also adults who depart from their earlier patterns of usage). As Bybee (1988) (and similarly Haspelmath 1999b, Kirby 1999) has pointed out, diachronic change is the necessary link between patterns of language use and grammatical structures. Hawkins (1994) refers to the process by which performance principles are conventionalized to become grammatical restrictions as "grammaticalization", but he does not say more about it. It is true that the exact nature of the grammaticalization of discourse into grammar is not very well understood yet, but it is clear that one crucial factor is the frequency of occurrence of the various patterns. It is a well-known fact that frequent recurrence of an experience makes it more likely that that experience will be memorized; in other words, a frequent experience is more likely to be entrenched in memory than a rare experience. What this means for syntax is summarized by Bybee & Scheibman (1999:576):

"[W]hile semantic and pragmatic factors determine what occurs together in discourse, the actual repetition of stretches of talk triggers the mechanism that binds them into constituents. The general principle we propose to predict the degree of cohesion between elements is the following: the greater the probability that one element will follow another, the tighter the grammatical cohesion between them. We further propose that this principle derives from the nature of memory storage of linguistic experiences."
There is no need here to dwell on the exact nature of the psychological processes involved, but I believe that there is good evidence for the condition in (29).

(29) **The Frequency Condition on Entrenchment in Grammaticalization (FCEG)**

A loose configuration of elements in discourse becomes entrenched in the speakers' minds and hence grammaticalized as a fixed construction only if it is frequent enough.

Note that this condition does not presuppose an answer to the difficult question of why loose discourse configurations often get grammaticalized as grammatical patterns. It merely presupposes that this often happens and adds that frequency is an important factor.

3.3. More examples

To show the plausibility of the FCEG, let me cite three more or less random examples from a totally different domain of grammar, nominal morphosyntax.

(i) **Possessive suffixes and inalienable nouns:** In many languages, possessive pronouns were grammaticalized as affixes only with inalienable nouns, i.e. nouns that very frequently occur in a possessive construction. For instance, in Ponapean (an Austronesian language of Micronesia), only inalienable nouns have possessive suffixes, while inalienable nouns such as 'coconut' must resort to a circumlocution involving a possessive classifier:

(30) Ponapean (Rehg 1981:161-5)

<table>
<thead>
<tr>
<th>inalienable noun</th>
<th>alienable noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>kihl 'skin'</td>
<td>ihn 'mother'</td>
</tr>
<tr>
<td>kil-i 'my skin'</td>
<td>ine-i 'my mother'</td>
</tr>
<tr>
<td>*upwe-i 'my coconut'</td>
<td></td>
</tr>
</tbody>
</table>

(OK: nime-i uhpw)

We cannot of course be certain that Ponapean *upwe* is impossible because of failed grammaticalization, because we have no direct evidence for the history of the construction. But an analogous development took place in several varieties of Italian, such as Old Tuscan. Its Latin ancestor had independent possessive pronouns (e.g. *mulier mea 'my wife'), and in Old Tuscan we see these grammaticalized as pronominal suffixes, but only with inalienable nouns (e.g. *moglia-ma 'my wife', fratel-to 'your brother', signor-so 'his father', Rohlfs 1968:124). Here it is clear that the corresponding forms with alienable nouns (e.g. *terra-ma 'my land') do not exist because they never got grammaticalized, although their Latin source constructions were impeccable (Latin *terra mea 'my land').

(ii) **Locative case and inanimate nouns:** In many languages, case affixes are restricted to nouns of a particular semantic class. For instance, in Dhivehi (the Indo-Aryan language of the Maldives), the locative case is possible only with inanimate nouns, while animate nouns must resort to a
circumlocution (cf. 31). Again, this must be because animates are rarely thought of as locations and are hence rarely used with a locative case.

(31) Dhivehi (Cain & Gair 2000:16)

<table>
<thead>
<tr>
<th>inanimate noun</th>
<th>animate noun</th>
</tr>
</thead>
<tbody>
<tr>
<td>fot</td>
<td>dari</td>
</tr>
<tr>
<td>'book'</td>
<td>'child'</td>
</tr>
<tr>
<td>fotu-ge</td>
<td>dari-ge</td>
</tr>
<tr>
<td>'of the book'</td>
<td>'of the child'</td>
</tr>
<tr>
<td>fotu-ga@</td>
<td>*dari-ga@</td>
</tr>
<tr>
<td>'in the book'</td>
<td>'in the child'</td>
</tr>
</tbody>
</table>

(iii) Possessive markers and definiteness: In many languages, simple possessive pronouns are only used when the NP they modify is definite. For instance, in Romanian a postnominal possessor can be linked directly only to a noun with the definite article, not to a noun with the indefinite article. This is presumably because possessed NPs are much more often definite than indefinite (see Haspelmath 1999a). When an indefinite NP is to be modified by a possessor, then a circumlocution involving the special possessive marker al has to be used.

(32) Romanian

<table>
<thead>
<tr>
<th>definite NP</th>
<th>indefinite NP</th>
</tr>
</thead>
<tbody>
<tr>
<td>prieten-ul</td>
<td>un prieten</td>
</tr>
<tr>
<td>'the friend'</td>
<td>'a friend'</td>
</tr>
<tr>
<td>prieten-ul meu</td>
<td>'un prieten meu</td>
</tr>
<tr>
<td>'my friend'</td>
<td>'a friend of mine'</td>
</tr>
<tr>
<td>(OK: un prieten al meu</td>
<td></td>
</tr>
<tr>
<td>'a friend of mine')</td>
<td></td>
</tr>
</tbody>
</table>

Again, the Latin source construction was perfect (*unus amicus meus* 'one friend of mine'), so it seems likely that the low frequency of the indefinite possessed NP prevented its grammaticalization.

Analogously, I claim that the weak pronoun combinations blocked by the DPRC do not occur (in the languages that show DPRC effects) because they have not been grammaticalized due to their less frequent occurrence. This can again be illustrated well by Romance languages, because their history is so well known. Romance clitic pronouns derive from the independent pronouns and demonstratives of Latin (cf. Wanner 1987). Latin had virtually no word order restrictions at the clause level, so these could occur in any order, and combinations such as *me illi* 'me to him' were perfectly grammatical. However, as in German, these combinations must have been quite rare, for the same reasons (see §4 and §6 for more discussion). When Latin turned into Romance, the pronouns and demonstratives split up: Their stressed uses became the independent pronouns of the Romance languages, and their unstressed uses became the clitic pronouns. These were grammaticalized in a quite rigid way, leading to a fixed position in the clitic sequence, a more or less fixed position with respect to the verb, and gaps in the paradigm in those cases that were too rare to pass the threshold for grammaticalization.

Thus, this explanation of the DPRC is not a synchronic explanation, but a diachronic explanation. The synchronic distribution of grammatical systems is constrained in the observed way because of a restriction on the way in which languages change. The unattested language type (languages showing
anti-DPRC effects) does not exist because there is no way in which it could arise, not because of some synchronic reason (e.g. because it is unlearnable due to the structure of Universal Grammar).

4. The frequencies of pronoun combinations

For obvious semantic reasons, the recipient of a ditransitive construction is virtually always animate, and the theme shows a strong tendency to be inanimate (this was observed, for instance, by Jespersen 1927:287). Inanimate recipients occur only when a ditransitive verb has a very atypical meaning (e.g. English give in I’ll give it a try, or French préférer in Ce film, je lui préfère le roman ‘This movie, I prefer the novel to it’). animate themes do occur with ditransitive verbs such as ‘send’, ‘present’ and ‘recommend’, but of course verbs of transfer such as ‘give’ and ‘sell’ are much more frequent, and they allow animate themes only in special circumstances such as marriage and slavery. Most ditransitive speech act verbs do not allow animate themes at all for semantic reasons.

Since first and second person pronouns are always animate and third person pronouns may be inanimate, it is clear that the Theme NP will most often be third person, whereas the Recipient NP may be first, second or third person.9

Thus, the frequency skewing that was presupposed in the usage-based explanation of §3 can be deduced from general considerations, but it is still useful to examine text corpora to see whether they confirm the predicted frequency asymmetry. Of course, we cannot study the frequency of pronoun combinations in languages with DPRC effects such as French, because one could argue that the grammatical asymmetry influences the text frequency of pronoun combinations (i.e. me le ‘it to me’ could be more frequent than me... à lui ‘me to him’ simply because the former shows two weak pronouns, whereas the latter shows one weak pronoun and one strong pronoun). So we need to look at languages like German, where there is no distinction between weak and strong pronouns, and where all pronoun combinations are grammatical. And in fact the disfavored person-role-combinations are attested in German corpora: Example (28) is from one of Goethe’s novels.

(33) einer von den Neffen meiner Wohltäterin stellte mich ihm als geschickten Forstmann vor, ... (Goethe, Wilhelm Meister)
‘one of my benefactor’s nephews presented me to him as a skillful forest ranger’

9 This is not a new observation. Retsö (1987:224), in a discussion of double pronominal objects in the Semitic languages, notes that “the receiver tends to be animate and may be either of three persons, while the patient tends to be inanimate and, as a rule, the 3rd person. it is in fact possible to extract a corpus of examples showing that this is the dominant combination.”
In order to show that these person-role combinations are rare, one would need a corpus that is representative of everyday colloquial speech, and that is large enough to contain a sufficient number of ditransitive constructions with two object pronouns. Since the corpus study is only a minor point in this article, I settled on a written corpus that was readily available: the Goethe sub-corpus of the online COSMAS corpus of the Institut für deutsche Sprache (Mannheim), which consists of 1.4 million words.\textsuperscript{10} The Goethe corpus has the advantage that there are many first person pronouns (Goethe’s novels are typically written from the protagonist’s perspective), though second person pronouns are of course underrepresented as in most other written texts.

The Goethe corpus contains 241 instances of ditransitive constructions with two object pronouns. Their distribution over the four main categories is shown in Table 2.

<table>
<thead>
<tr>
<th>dative pronouns</th>
<th>1st/2nd person</th>
<th>3rd person</th>
</tr>
</thead>
<tbody>
<tr>
<td>accusative pronouns</td>
<td>1st/2nd person</td>
<td>15 (7%)</td>
</tr>
<tr>
<td></td>
<td>3rd person</td>
<td>132 (59%)</td>
</tr>
</tbody>
</table>

**Table 1: Object-pronoun combinations in the COSMAS Goethe corpus**

We see that object-pronoun combinations with a third person accusative (i.e. Theme) pronoun are much more frequent than combinations with a first/second person accusative pronoun. To some extent this is due to the fact that first/second person object pronouns are generally less frequent than third person object pronouns, and this is probably due to the text type: Of the 482 object pronouns in pronoun combinations, 41\% are first or second person, and 59\% are third person. But if all combinations were equally likely, we would get the picture in Table 3, and Table 2 still departs significantly from this expected picture.

<table>
<thead>
<tr>
<th>dative pronouns</th>
<th>1st/2nd person</th>
<th>3rd person</th>
</tr>
</thead>
<tbody>
<tr>
<td>accusative pronouns</td>
<td>1st/2nd person</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>3rd person</td>
<td>24%</td>
</tr>
</tbody>
</table>

**Table 3: Hypothesized object-pronoun combinations**

(if all person-case combinations were equally likely)

Thus, we can conclude that Recipient-Theme combinations with first or second person Themes are in all likelihood significantly rarer than would be expected, while Recipient-Theme combinations with first/second person Recipients and third person Themes are significantly more frequent than would be expected.

\textsuperscript{10} http://corpora.ids-mannheim.de/~cosmas/
My explanation in terms of the FCEG is primarily based on the asymmetric frequency distribution, and in this way it differs sharply from previous approaches. Linguists have traditionally sought to account for non-arbitrary patterns directly in terms of semantic-pragmatic notions, and we saw two such attempts in §2.5 (clash between positional requirements) and §2.6 (harmonic alignment of person and role scales). We also saw that these two attempts were unsuccessful, but it seems that they were basically right in that the harmonic relation between the scales is the explanation for the frequency skewing: Harmonic combinations are used much more often than disharmonic combinations. In §2.6 I observed that in Aissen's account, there was no principled reason why the person and role scales should be aligned in the particular direction assumed by the analysis, but it is not difficult to find a reason, once one leaves Prince & Smolensky's purely formal framework (where there doesn't seem to be any room either for a phonetic explanation of the alignment of sonority and syllable positions). In fact, an explanation for the harmonic alignment is implicitly given by Farkas & Kazazis (1980:77-79). They note that the higher positions both on the role scale and on the person scale are associated with greater inherent topicality and "empathy potential", and they refer to both scales as "topicality hierarchies".11 Thus, weak pronoun combinations with a first or second person Recipient are very natural (because both first and second person and Recipient tend to be topical), whereas combinations with a first or second person Theme are rather unnatural (because first or second person tend to be topical, whereas a Theme tends not to be topical). It is in this sense that I said in §2.6 that the harmonic-alignment account is close to my own account. However, the precise causal relation between the "unnaturalness" of a combination and its ungrammaticality is unclear in Farkas & Kazazis (1980), Rosen (1990), Parodi (1998), and Aissen (1999), whereas it is much clearer in my usage-based explanation, where there is a reasonably well-understood causal chain from naturalness to frequency, and from frequency to grammaticalization.

Before leaving this section, I need to resolve a potential contradiction: At the beginning of the section, I explained the relative rarity of certain combinations in terms of animacy, i.e. I said that first/second person Themes are relatively unnatural (and hence rare) because first/second person pronouns are animate, and ditransitive Themes are usually unanimate. This suggests that not topicality, but animacy is the underlying principle that determines harmonic alignment of scales. However, since animacy and topicality typically correlate with each other, it is not immediately obvious which of these should be taken s more fundamental. I will return to this issue in §6, where I provide evidence that animacy is not the only relevant factor in person-role asymmetries.

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11 This is even more explicit in Duranti's (1979) analysis, which is however based on the idea of positional requirements linked to topicality.
5. Interim summary

Let me summarize my usage-based explanation so far: I have proposed that the DPRC should be explained with reference to frequency in language use and grammaticalization: because the person and role scales correlate strongly with topicality and animacy, "high persons" tend to occur in "high roles" and "low persons" tend to occur in "low roles", i.e. harmonic person-role associations are more frequent than disharmonic person-role associations. This frequency skewing can be directly observed in languages that have no weak/strong distinction in their pronouns, e.g. German. When strong pronouns undergo grammaticalization, as happened fairly recently in the Romance languages and in Maltese, only the most frequent combinations survive as grammatical patterns, due to the FCEG. What counts as "the most frequent" differs from language to language: In some languages, all combinations are frequent enough, so all are possible (as seems to be the case in Kabardian, cf. example (14)). In many languages, the combinations in which the theme pronoun is a first or second person pronoun are too rare and do not pass the threshold. These languages show DPRC effects.

I will now briefly compare this explanation to those in §2 and point out in which ways it is superior to them:

(i) **Generality.** My usage-based explanation predicts that the DPRC should be universal as a preference, because the ultimate semantic-pragmatic reason for the frequency skewing applies to all languages. It is thus more general than language-particular stipulation (§2.1) and other explanations that apply only to certain languages (such as ambiguity avoidance (§2.2) and a ban on doubly filled structural slots (§2.3)).

(ii) **Preference, not absolute constraint.** Since there is no absolute threshold for the frequency that is required for grammaticalization, it is not expected that all languages will show DPRC effects, in contrast with explanations that see the DPRC as an inviolable innate constraint (§2.4). But there is a type of language that is excluded by the usage-based explanation: Languages in which only the rarer pronoun combinations are grammaticalized should not exist. Thus, even though the DPRC is not an absolute constraint, it does make a falsifiable claim.\(^\text{12}\)

(iii) **Irrelevance of pronoun position.** The usage-based explanation makes no reference to the order of the weak pronouns, unlike the explanation in terms of positional alignment (§2.5). This is appropriate, because there is no evidence that the relative order of the pronouns, either with respect to each other or with respect to the verb, is a relevant factor. The two object

\(^{12}\) One caveat is in order here: It cannot be excluded that some other diachronic process (unrelated to the grammaticalization of independent pronouns) influences the available weak pronoun combinations (perhaps a phonological constraint that rules out certain morpheme combinations). In this way, a language with anti-DPRC effects might conceivably arise. I know of no such case, and I assume that this possibility can be neglected for practical purposes. I mention it here in order to be maximally clear about the logic of the explanation: A language type is excluded because there is no type of diachronic change that leads to it.
pronouns need not even occur adjacent to each other, as is shown by (8) from Manam.

(iv) **Harmonic alignment of scales.** Person-role associations are more "natural" or more "harmonic" when high persons (first/second) are associated with high roles (Agent, recipient), and when low persons (third) are associated with low roles (Theme, Patient), because both the person and role scales are strongly correlated with animacy and topicality. This explanation for scale alignment and its direction is difficult to build into a formal model such as Aissen's (1999). Moreover, the fact that unnatural or disharmonic combinations are infrequent in language use follows straightforwardly from the general properties of speakers' pragmatic behavior in language use. No special device such as "harmonic alignment" and "fixed constraint hierarchies" is needed in the usage-based explanation.

(v) **Restriction to weak pronouns.** Since the FCEG only applies to grammaticalized structures, the DPRC will apply only to weak (i.e. strongly grammaticalized) pronoun combinations, so this restriction follows immediately from the usage-based explanation.\(^{13}\) It does not follow so straightforwardly from any of the other explanations.

At this point, I want to mention briefly a new approach to person-role constraints that was put forward by Bresnan & Dingare & Manning (2001). These authors do not mention the DPRC, but their focus is on the "monotransitive person-role constraint" that was discussed in §2.6 above in connection with Aissen's harmonic-alignment analysis. As I mentioned briefly in §4, Bresnan et al. (2001) go beyond the earlier literature in attempting to account for the evidently non-accidental correspondence between the hard grammatical constraint of Lummi (where the person of the subject argument cannot be lower than the person of a nonsubject argument) and the statistical preferences of English (where passives with first/second person subjects are significantly more common than passives with first or second person agents). They propose a formal model in the framework of Stochastic OT (see Boersma & Hayes 2001) that captures this generalization. The crucial aspect of the model is its ability to produce stochastic outputs, i.e. in addition to assigning simple grammaticality values to candidates ("grammatical","ungrammatical"), it may also assign values corresponding to the likelihood of occurrence of candidates ("2%", "8%", "50%", etc.), which are then reflected by frequencies in language use. The mechanisms that allow this are "ranking on a continuous scale" and "stochastic evaluation" (for details, see Bresnan et al. 2001).

This proposal is very interesting because it takes the observed usage-grammar correspondence seriously and attempts to account for it. But since it adopts Aissen's (1999) harmonic-alignment analysis (see §2.6), it inherits all the problems that are associated with it. In a sense, the Stochastic OT account takes the opposite approach from mine: While I explain language structure on the basis of language use, Bresnan & Dingare & Manning explain language use on the basis of a particular model of grammar. The model of grammar is therefore still unexplained, whereas in my approach

\(^{13}\) A slightly revised version of this statement will be given in §6.
the patterns of language use are not unexplained: They follow from the semantic and pragmatic properties of the structures in question. Thus, the usage-based explanation proposed here would not be made superfluous by a Stochastic OT model for DPRC effects.

6. Extending the usage-based explanation further

6.1. How important is frequency?

One possible objection to the frequency-based explanation presented in §3-5 is that the frequencies of grammatical patterns may vary along countless dimensions: subordinate vs. main clause, past tense vs. present tense, singular vs. plural, specific lexical items, speaker’s age and sex, spoken vs. written language, and so on. Why do we get a grammaticalization effect only with person and role categories, and not dependencies between various other factors? Many linguists seem to find the data from language use rather chaotic and confusing, whereas grammatical structures seem highly systematic and orderly to them. They are likely to ask: Is it really plausible that frequency of use should play such an important role in determining grammatical structures? (cf. Newmeyer 1998a:§5.3.2)

My answer to this potential objection is twofold: On the one hand, I readily admit that frequency is not the only important factor determining grammatical structures, although I would insist that its importance is generally underestimated. On the other hand, I do believe that whenever there are strong frequency skewings in discourse, the possibility of conventionalizing these tendencies exists, and if we look hard enough, we may very well find everything that the usage-based explanation predicts.

Besides frequency, it is clear that analogy plays a very important role in shaping grammatical structure. It is because of this factor that semantically similar verbs often show the same type of argument coding. For instance, the French verb présenter ‘present’ behaves just like the semantically related montrer ‘show’ and donner ‘give’, although it occurs much more often with an animate Theme argument. If frequency were the only relevant factor, one might expect présenter to lack DPRC effects. But just like sound change typically affects whole classes of words (because of analogy), grammaticalization too may affect whole classes of lexical items. Another example is the behavior of third person pronouns. One might expect these to behave differently, depending on whether they are animate or inanimate. A pronoun combination like 'it to me' is certainly much more frequent than a combination like 'him to me', and yet in French, Agnès me le montre [Agnès 1SG.REC 3SG.THM shows] can mean either 'Agnès shows it to me' or 'Agnès shows him to me.' So the grammaticalization has affected the whole class of third person pronouns, independently of their meaning, and animate third persons follow the pattern of the (more frequent) inanimate third person pronouns. So analogy is a very important factor, but it must be emphasized that analogical effects need not be shown and cannot be predicted for specific cases. It so happened that
French présenter joined the class of 'give' and 'show', but this was not necessary (cf. English, where present does not allow the double-object construction of give and show). And it so happened that French le 'him' came to behave like le 'it', but this was not necessary. Notice, for instance, that the third person pronoun se did not follow the analogy of le: The combination *se lui is just as impossible as *me lui and *te lui, although se is third person; but because of its coreference with the subject, se is far more likely to be animate than le. Of course, analogy is not random either, but in the present context it does not seem to be useful to invoke it as a factor in the explanation of object pronoun combinations.

Thus, I expect that we will find many other conventionalized restrictions on the patterning of Recipient and Theme argument besides the restriction on first/second person Themes in weak pronoun combinations that have been the main focus of this paper. One factor that immediately comes to mind is number. Plural forms are invariably rarer than singular forms, so one might expect some languages to show greater restrictions on plural object pronouns. This is indeed the case in Romanian, where combinations of plural weak object pronouns are inherently worse than combinations of plural weak object pronouns (Farkas & Kazazis 1980:79-81):

(34) a. O sa* mi te omoare.
will that 1SG.REC 2SG.THM kill.3PL
'They will kill you (SG) on me.'

b. *Vor sa* mi va* omoare.
want.3PL that 1SG.REC 2PL.THM kill.3PL
'They want to kill you (PL) on me.'

Moreover, one might ask why the DPRC should be confined to grammaticalized pronouns, because full NPs and strong pronouns must show frequency skewings as well, and they could equally become subject to grammaticalized constraints. This is correct, and when I said in §5 that only weak pronouns show grammaticalization effects, this was an oversimplification. All conventionalized linguistic structures, whether phrasal patterns, clitic groups or morphologically complex words are in a sense grammaticalized, i.e. they are part of speakers' internal grammatical knowledge. And we do indeed find languages with restrictions on the combination of indeoendent Recipient and Theme pronouns. In many varieties of English, while (32a) is perfectly normal, (32b-c) get progressively worse, although these object pronouns are not normally regarded as "weak pronouns".15

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14 A somewhat different type of number contrast is reported for Shambala by Duranti (1979:36-37).

15 There is considerable variation among English speakers with regard to these structures. Some (especially American English speakers) find all four examples in (32) bad, while others (especially speakers of British English) find all of them grammatical. The matter is complicated further by the fact that in different dialects of British English, different
Thus, instead of saying that DPRC effects are impossible with independent pronouns, we should say that they are more likely with weak pronouns, because these are more strongly grammaticalized than full NPs and strong pronouns. So what is ruled out is a language that has both strong and weak pronouns, but only strong object pronouns obey the DPRC.

6.2. More topicality scales

In this subsection, I would like to focus on those properties of arguments that have to do with topicality. We saw in §4 that authors such as Duranti (1979) and Farkas & Kazazis (1980) attributed the harmonic association of Recipient with first/second person and of Theme with third person to topicality or topicworthiness: Recipients are very topicworthy, and so are first and second person pronouns, and consequently these are often associated with each other. But topicality also correlates with animacy (as we saw at the end of §4), and indeed with other parts of the animacy scale such as pronoun vs. full NP, proper noun vs. common noun, and of course with definiteness:

(36) Expected harmonic associations

<table>
<thead>
<tr>
<th>more topicworthy</th>
<th>less topicworthy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recipient</td>
<td>Theme</td>
</tr>
<tr>
<td>first/second person</td>
<td>third person</td>
</tr>
<tr>
<td>pronoun</td>
<td>full NP</td>
</tr>
<tr>
<td>proper name</td>
<td>common noun</td>
</tr>
<tr>
<td>animate</td>
<td>inanimate</td>
</tr>
<tr>
<td>definite</td>
<td>indefinite</td>
</tr>
</tbody>
</table>

In the following, I will give an example of a grammatical restriction for each of these additional associations.

(i) Pronoun vs. full NP. Lillooet (Interior Salish, British Columbia) has a grammatical restriction to the effect that when the Recipient is a full NP, the Theme may not be a pronoun, but must be a full NP as well. Thus, (37a) is possible, but (37b) is impossible. Instead, a passive construction must be used (van Eijk 1997:229).

(37) a. ʔúm ’n-as kwās-Sam tiāc’ qāxāa
       give-3SG.SUBJ/3SG.OBJ ART-NMLZ-Sam ART-horse-ART
       'He gave Sam a horse.'
b. *?ám’n-ás kwâs-Sam
   give-3SG.SUBJ/3SG.OBJ ART-NMLZ-Sam
   'He gave it to Sam.'

c. táw’-n-kan ?ay- niân-c’qáxää
   sell-1SG.SUBJ/3SG.OBJ then ART-1SG-horse-ART
   'Then I sold him my horse.'

The opposite situation, with the Theme as a full NP and the Recipient as a pronoun, is perfectly normal (cf. 37c).

(ii) Proper name vs. common noun. Kikongo (Bantu-H, DR Congo) allows two animate NPs as Recipient and Theme in its double-object construction (cf. 38a), but Recipient and Theme cannot be both proper names (cf. 38b). A different construction involving the preposition kwe 'to' has to be used (cf. 38c) (Lumwamu 1973:181).

       give Ngunu child
       'Give Ngunu the child!'  

       give Masamba Ngunu
       'Give Masamba Ngunu!'  

       give Ngunu to Masamba
       'Give Ngunu to Masamba!'

(iii) Animate vs. inanimate. In many (especially European) varieties of Spanish, there is a distinction between the inanimate third person masculine Theme object clitic lo ('it') and the animate third person masculine clitic le ('him'), e.g. lo vi 'I saw it' vs. le vi 'I saw him'. In these so-called "leista" dialects, the animate Theme clitic le cannot cooccur with a Recipient clitic, whereas the inanimate clitic can (Ormazabal & Romero 1998:418):

---

16 On the basis of (33), we would also expect the existence of languages in which the Recipient must be a pronoun and cannot be a full NP, i.e. 'He gave him a horse' would be expressed by the standard construction, but 'He gave Sam a horse' would require a circumlocution. Such languages are not uncommon, a case in point being French, where a simple double-object construction is possible only when the Recipient is a pronoun (Il lui donna un cheval 'He gave him a horse', but not *Il donna Sam un cheval 'He gave Sam a horse'). For full-NP Recipients, French has to use a circumlocution with the preposition à (Il donna un cheval à Sam 'He gave Sam a horse'). This construction is not normally thought of as a "circumlocution", but it meets the definition of this term that I have used in this paper ('an alternative construction with roughly the same meaning that is more complex grammatically and/or lexically').
In Mohawk (Iroquoian, New York State and Ontario), a Theme can only be inanimate (cf. 40a), not animate (cf. 40b-c) (Baker 1996:194; the similarity to the Spanish facts was pointed out by Ormazabal & Romero 1998:423-4).

Conversely, in Passamaquoddy-Maliseet, the Recipient NP cannot be inanimate, so there is no direct translation of a sentence like I gave money to the church (Leavitt 1996:36). The same is true in Southern Tiwa (Allen & Frantz 1986:391) and Kinyarwanda (Kimenyi 1980:59). ^17

**(iv) Definite/indefinite.** In Akan (Niger-Congo, Kwa; Ghana etc.), the Theme argument in a double-object construction must be indefinite, as in (41a). (41b) with the definite article on the Theme is ungrammatical, and a circumlocution must be used instead (cf. 41c), in which the Theme is introduced by the serial verb dè (lit. 'take') (Sáah & Êzè 1997:143-44).

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^17 For Classical Nahuatl, Launey (1994:168) describes an animacy restriction just for the indefinite pronominal prefixes tla- 'someone' and te@'somebody': ni-te@la-maca [1SG.SUBJ-INDDEF.HUM.OBJ-INDDEF.INANIM.OBJ-give] can only mean 'I give something to somebody', not 'I give somebody to something'.

---
Since personal pronouns are always definite, Akan also shows the pronoun/full NP contrast that we saw above for Lillooet (Sáàh & Ézè 1997:143).

Conversely, in Kinyarwanda (Bantu-J, Rwanda etc.), the Recipient NP must be definite. In order to render a sentence with an indefinite Recipient (e.g. 'I gave a book to a child'), the language has to resort to a circumlocution with an existential construction ('There is a child I gave a book') (Kimenyi 1980:59-60).

Thus, for all of the expected harmonic associations of (36) we find cases of grammatical restrictions reported in the literature. Such restrictions are of course rarer with full NPs than with weak pronouns, but they may be more common than has been suspected so far, because grammars are much more likely to report gaps in inflectional paradigms and in weak pronoun combinations. The explanation for all these restrictions is the same as the explanation for the DPRC: Rare Recipient-Theme combinations fail to get grammaticalized. To make the explanation fully convincing, it would of course be ideal to have frequency counts analogous to those of §4. I have little doubt that such counts will show exactly the asymmetries predicted by (33), and they should not be difficult to do.

6.3. Generalizing the DPRC: The Ditransitive Role Topicality Constraint

From the additional data that we saw in the preceding subsection, it is clear that the DPRC is only a special case of a larger generalization, which can be formulated as in (42).

(42) Ditransitive Role Topicality Constraint
Grammars are likely to put restrictions on Recipient-Theme combinations to the extent that the Recipient argument is not higher on the topicality scales than the Theme argument.

In (42), the wording 'to the extent that' (instead of 'if') is crucial in order to express the prediction that restrictions are the most likely if the Recipient is lower than the Theme on the topicality scales, next most likely if the Recipient and the Theme are equal on the scales, and least likely if the Recipient is higher than the Theme. This means that for each of the associations mentioned in (i)-(iv) as well as for person-role associations, there is a weak form, two strong forms, and one super-strong form of the restriction. Consider, for instance, the possible associations of role and definiteness in ditransitive constructions, shown in (43).

(43) a. Rec ─ Thm  b. Rec ─ Thm  c. Rec ─ Thm  d. Rec ─ Thm
    def   indef  def   indef  def   indef  def   indef

It seems clear that (43a) is the most frequent association, and it should be allowed by all languages according to the Ditransitive Role Topicality
Constraint. (43d) is the most unusual association, so this is the most likely to be prohibited by a grammatical rule. A language that only bans (43d) thus shows the weak form of the Ditransitive Role Topicality Constraint for definiteness. A language banning both (43d) and (43b) shows one strong form of the constraint (a case in point is Kinyarwanda, which allows (43c): 'I gave the book to the child'). A language banning both (43d) and (43c) shows a different strong form of the constraint (possibly Akan is such a language, if it allows 'Ama gave a child money'; I do not know whether this is the case). Finally, a language that allows only (43a) would show the super-strong form of the restriction. No language should allow (43d) but prohibit (43b), for instance. In other words, (43) could also be conceived of as an implicational hierarchy (43d \supset 43c/43b \supset 43a), so implicational universals like (18) are just special cases of implicational hierarchies.

Let us now return to the DPRC. As with the Ditransitive Role Topicality Constraint for definiteness, four different situations need to be distinguished:

(44) a. Rec Thm b. Rec Thm c. Rec Thm d. Rec Thm
\[ \begin{array}{ccc}
1/2 & 3 \\
1/2 & 3 \\
1/2 & 3 \\
1/2 & 3 \\
\end{array} \]

All DPRC languages prohibit (44d), and many of them in addition prohibit (44c). The formulation of the DPRC in (1) took this situation as canonical, and most of the languages mentioned in §1 do indeed show this strong form of the DPRC (e.g. French, Modern Greek, Basque, Maltese, Southern Tiwa). But in some languages, only the weak restriction is found, i.e. only (44d) is ruled out, and (44c) is possible.¹⁸ Some examples from such languages are given in (45) (another example, from Romanian, was seen earlier in (34)).

(45)a. Catalan (Bonet 1994:41)

\textit{Te m' ha venut el mercador mès important.}
\hspace{1cm} you me has sold the merchant more important
\hspace{1cm} 'The most important merchant has sold you to me.' \hspace{1cm} (or: '... me to you')

b. Italian (Davide Ricca, p.c.)

\textit{Mi hannochiamatoe mi ti hanno presentato.}
\hspace{1cm} me have called and me you have presented
\hspace{1cm} 'They called me and presented me to you.'

¹⁸ That there is both a weak and a strong form of the DPRC was noticed by Bonet (1994:40-41), who also pointed out that the weak form seems to be confined to languages with clitic pronouns, whereas languages with object affixes always show the strong form of the DPRC. Bonet has no explanation for this, but in the present context it is not surprising: Object affixes are more grammaticalized than object clitics, so they should on the whole be subject to stronger restrictions.
c. Czech (Denisa Lenertová, p.c.)

\[ \text{Nevím, jestli mi to nekdo doporučil.} \]

'I don’t know if somebody recommended you to me.'

In addition to the weak form and one type of strong form, the super-strong form of the Ditransitive Role Topicality Constraint for person is attested as well: In Kambera (Central Malayo-Polynesian, eastern Indonesia), "two object clitics can occur in sequence if the inner clitic [i.e. the Recipient] is first or second person and the outer clitic is third person" (Klamer 1997:903):

(46)Kambera (Klamer 1997: 903-4)

a. \text{Na-wua-ngga-nya.}

\[ 3\text{SG.AG-give-1SG.REC-3SG.THM} \]

'He gives it to me.'

b. \text{Na-wua-nggau-nja.}

\[ 3\text{SG.AG-give-2SG.REC-3PL.THM} \]

'He gives them to you (e.g. apples).' 

c. \text{*Na-wua-nja-nya.}

\[ 3\text{SG.AG-give-3PL.REC-3SG.THM} \]

'He gives it to them.'

d. \text{*Na-wua-ngga-nggau.}

\[ 3\text{SG.AG-give-1SG.REC-2SG.THM} \]

'He gives you to me.'

Thus, Kambera only allows (44a). I have no example of a language that only shows the other type of strong constraint, where (44c) is possible but (44b) is not, and given my explanation, this must be an accidental gap in my data (or, much less likely, an accidental gap in the world’s languages).

7. Conclusion: model-independent explanation

I hope to have shown in this paper that the Ditransitive Person-Role Constraint, whose effects are seen in language after language with weak or affixal object pronouns, is best explained with reference to systematic and universal properties of language use (i.e. performance) (see the summary of arguments in favor of this in §5). In ditransitive constructions, the Theme argument is very likely to be third person and the Recipient is very likely to be first or second person. The frequency skewing in the source construction is the reason why DPRC-violating structures often do not get grammaticalized when strong pronouns turn into weak pronouns. This is thus a usage-based and ultimately diachronic explanation of a widespread grammatical pattern.
Some readers may still not be satisfied, despite the large amount of evidence for my explanation that I have assembled here, because I have not provided a formal model of ditransitive constructions with clitic and affixal object pronouns. They might object: "Usage-based models of grammar' say much about usage but little about models of grammar". This is perhaps a fair judgment. However, I did not set out to propose a model of grammar, but a grammar-external (and therefore model-independent) explanation of a phenomenon observed in many languages. This paper therefore contributes to linguistic theory in a different way than most work in the Chomskyan generative tradition. While this latter approach typically explains linguistic phenomena by proposing abstract higher-level generalizations and by building formal models of grammar through which all and only the attested languages can be described, in this paper I explain linguistic phenomena with reference to language use and language change (following the functionalist tradition of Greenberg 1966, Givón 1979, and Hawkins 1994). Both of these enterprises are theoretical in nature (as is argued forcefully by Dryer (to appear)), and they do not contradict each other: Few people doubt that language structure is constrained both by the properties of the innate human cognitive apparatus and by the properties of language use and language change. But there is a certain tension between the two approaches, because it is not at all clear a priori how much of the explanatory work should be done by innate structures and how much should be done by language use. Thus, while the usage-based functional explanation that I have proposed in this paper does not challenge the generative enterprise as a whole, it does challenge the idea that the DPRC and related phenomena should be explained by a formal model of grammar (cf. §2.4-7). If I am right, then formal theories of grammar are somewhat less important and theories of language use and language change are somewhat more important for understanding language structure than many linguists think.

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>FUT</td>
<td>future</td>
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<tr>
<td>M</td>
<td>masculine</td>
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<tr>
<td>OBL</td>
<td>oblique case</td>
</tr>
<tr>
<td>PF</td>
<td>perfective</td>
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<tr>
<td>PL</td>
<td>plural</td>
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<td>PRES</td>
<td>present tense</td>
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<td>REC</td>
<td>Recipient</td>
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<tr>
<td>SG</td>
<td>singular</td>
</tr>
<tr>
<td>THM</td>
<td>Theme</td>
</tr>
</tbody>
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19 This sentence is from Joan Bresnan's abstract at the conference "The Lexicon in Linguistic theory", University of Düsseldorf, August 2001, where she presented a version of Bresnan et al. 2001.
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