# Defectivation and Paradigm Structure: Can a Number be a Gender? 

Frans Plank (U Konstanz)
Mannheim Inflectional Paradigms workshop, v/03

## A. The basics of paradigm design

- distinguishing, grouping, ordering, and identifying what is being distinguished, grouped, ordered
- distinctions: TERMS; groups: CATEGORIES; order: RELATIONS among terms and among categories, including affinity (licensing non-distinction), markedness (among terms), and dominance (among categories)
- On which grounds to distinguish, group, order?
- contrasts of form,
or also of co-varying (=agreeing or agreement-controlling) form
you ... yourself, you ... yourselves
vs. identity of forms and patterns of identity (neutralization),
and the interpretation of the rationale of an identity as "deep" or "superficial", as synchronic or diachronic (e.g., are $_{1}$ vs. are $_{2}$ )
- (plausible construal of) corresponding contrasts in meaning; e.g., as to (1): speech-act roles and sets formed from elementary roles:
$\{\mathrm{sp}\},\{\mathrm{ad}\},\{-\mathrm{sp} /-\mathrm{ad}\},\{\mathrm{sp}, \ldots\},\{\mathrm{ad}, \ldots\},\{-\mathrm{sp} /-\mathrm{ad}, \ldots\} ;$
meaning-form relation in accordance with referential hierarchy:
sp > ad > -sp/-ad
cardinality of sets: 1 vs. $1+$
- (in)ability to serve as resolution form in case of conflicts
e.g., Either you [2SG] or we are [2SG/1PL] wrong
- forms similar or dissimilar
- distribution similar or dissimilar
- exponence separate or cumulative
- possibilities of combination unlimited (even when exponence is cumulative) or limited
- trade-off with syntax: rules of syntax ought to be general (e.g., the same sbj-verb agreement rule for SG and PL, and for all verbs)
- "simplicity", as defined by your theory of phonology, morphology, syntax, and their interface
(1) Person and number in an (unusual) English verb

|  |  | (pers.pro) | PRESENT | PAST |
| :--- | :--- | :--- | :--- | :--- |
| SG | 1 | $(I)$ | am | was |
| 2 | (you) | are | were | 1 |
|  | 3 | (he/she/it) | is | was |
| PL | 1 | (we) | are | were |
| 2 | (you) | are | were | 2 |
| 3 | (they) | are | were | 4 |
|  |  |  |  |  |

markedness: PAST > PRESENT; PLURAL (ASSOCIATIVE) > SINGULAR; 1/2>3
dominance: TENSE $>$ NUMBER $>$ PERSON

| $\left(1^{\prime \prime}\right)$ | PRESENT | PAST |
| :--- | :--- | :--- |
| SG 3 | is | was |
| 1 | ar | was |
| 2 | are | were |
| PL 3 | are | were |
|  | 1 | are |
|  | 2 | are |

(2) Gender and number in the Russian past

| SG | M | ja, ty, on | cital |
| :--- | :--- | :--- | :--- |
| F | ja, ty, ona | citala | 'I (male), you (male), he read' (PAST) |
| N | ono | citalo | 'I (female), you (female), she read' |
| PL | my, vy, oni | citali | 'it read' |
|  |  |  | 'we, you-guys, they read' |
| [[SG.M, SG.F, SG.N], PL] | hierarchical? (i.e., with subset grouping) |  |  |
| [M, F, N, PL] | flat? (i.e., without subset grouping) |  |  |

(3) Dependencies between number and gender

- universal implication: if agreement in gender, then in number
(but also: if (agreement for) case, then (agreement for) number)
- frequent cumulation
- frequent defectivization
- fewer genders in PL/DU/TR than in SG
(- also: different genders in PL/DU/TR than in SG)
- fewer numbers (i.e., no PL distinguished from SG) in non-human/less-
animate nouns than in human/animate nouns
- allomorphy
- of PL frequently conditioned by gender;
inverse number (as in Kiowa-Tanoan) as the most extreme case
- of gender marking conditioned by number?
- sometimes polarity
e.g., definite article in Somali

|  | SG | PL |
| :--- | :--- | :--- |
| M | $k i i$ | $t i i$ |
| F | $t i i$ | $k i i$ |

$\rightarrow \quad$ Still, all such dependencies are in principle consistent with the assumption that number and gender are separate categories.

## B. Gender defectivation in relation to number in German

(4) Agreement in the NP, and agreement and coreference with the NP, in German NOMINATIVE

| [d-as neu-e Zebra | ein- $\emptyset$ neu-es Zebra | welch-es ...] | komm-t | $\ldots$ | Ø-es |
| :--- | :--- | :--- | :--- | :--- | :--- |
| [d-er neu-e Gorilla | ein-Ø neu-er Gorilla | welch-er ...] | komm-t | $\ldots$ | Ø-er |
| [d-ie neu-e Kobra | ein-e neu-e Kobra | welch-e ...] | komm-t | $\ldots$ | s-ie |
| [d-ie neu-en Zebra-s | (viel-e) neu-e Zebra-s | welch-e ...] | komm-en | $\ldots$ | s-ie |
| [d-ie neu-en Gorilla-s | (viel-e) neu-e Gorilla-s | welch-e ...] | komm-en | $\ldots$ | s-ie |
| [d-ie neu-en Kobra-s | (viel-e) neu-e Kobra-s | welch-e ...] | komm-en | $\ldots$ | s-ie |

## ACCUSATIVE

[d-as neu-e Zebra
[d-en neu-en Gorilla

| ein- $\emptyset$ neu-es Zebra | welch-es ...] | $\ldots$ | $\emptyset$-es |
| :--- | :--- | :--- | :--- |
| ein-en neu-en Gorilla | welch-en ...] | $\ldots$ | ... |
| ein-e neu-e Kobra | welch-e ...] | $\ldots$ | -. |
| (viel-e) neu-e Zebra-s | welch-e ...] | $\ldots$ | $s$-ie |
| (viel-e) neu-e Gorilla-s | welch-e ...] | $\ldots$ | $s$-ie |
| (viel-e) neu-e Kobra-s | welch-e ...] | $\ldots$ | $s$-ie |

## GENITIVE

| $[d$-es neu-en Zebra-s | ein-es neu-en Zebra-s | welch-es ...]* | .. | sein-er |
| :--- | :--- | :--- | :--- | :--- |
| $[d$-es neu-en Gorilla-s | ein-es neu-en Gorilla-s | welch-es ... $]^{*}$ | $\ldots$ | sein-er |
| $[d$-er neu-en Kobra | ein-er neu-en Kobra | welch-er ... $]^{*}$ | $\ldots$ | ih-r-er |

[d-er neu-en Zebra-s (viel-er) neu-er/-en Zebra-s welch-er ...] ... ih-r-er
[d-er neu-en Gorilla-s (viel-er) neu-erl-en Gorilla-s welch-er ...] ... ih-r-er
[d-er neu-en Kobra-s (viel-er) neu-er/-en Kobra-s welch-er ...] ... ih-r-er

## DATIVE

| [d-em neu-en Zebra | ein-em neu-en Zebra | welch-em ...] | $\ldots$ | ih-m |
| :---: | :---: | :---: | :---: | :---: |
| [d-em neu-en Gorilla | ein-em neu-en Gorilla | welch-em ...] | ... | ih-m |
| [d-er neu-en Kobra | ein-er neu-en Kobra | welch-er ...] | ... | ih-r |
| [d-en neu-en Zebra-s | (viel-en) neu-en Zebra-s | welch-en ...] | $\ldots$ | ih-n-en |
| [d-en neu-en Gorilla-s | (viel-en) neu-en Gorilla-s | welch-en ...] | ... | ih-n-en |
| [d-en neu-en Kobra-s | (viel-en) neu-en Kobra-s | welch-en ...] | ... | ih-n-en |

```
* indef without DET (as with mass nouns): neu-en Wein-s, neu-es Has-en?
                                    neu-en Bier-s, neu-es X
                                    neu-er Milch
```

(5) Agreement in German: Agreement classes
analysis A

SG.N
SG.M
SG.F
SG.F

PL
PL.F
exponents shared
among terms
PL.N
PL.M analysis B
analysis C

SG.N
SG.M
M
F
PL
paradigm hierarchical: paradigm hierarchical: paradigm flat:
[[SG.N, SG.M, SG.F],
[PL.N, PL.M, PL.F]]
terms reduced
in presence of
marked partner term;
terms and categories reduced everywhere: 1 category of 4 terms
[[SG.N, SG.M, SG.F], PL] [N, M, F, PL]

NUMBER dominates GENDER NUMBER dominates GENDER dominance irrelevant
analysis $\mathrm{C}^{\prime}$

N
M
F/PL
[ $\mathrm{N}, \mathrm{M}, \mathrm{F} / \mathrm{PL}$ ]
but see underlinings in (4)!
(6) Exponents in (4), their domains, and what they express (minimizing homonymy so far as reasonable)
$-\emptyset \quad$ indefinite article:
NOM, if $\mathrm{N}: \mathrm{ACC}=\mathrm{NOM}$, N and M ;
$-a s,-(e) s_{l}$ CASE MARK: NOM required (being the first word in an NP able to get such marking), N, and always if N , then $\mathrm{ACC}=\mathrm{NOM}$;
$-(e) r_{1} \quad$ CASE MARK: NOM required (being the first word in an NP able to get such marking), M;
-ie, -(e) DIRECT case (NOM or ACC), but no distinctive CASE MARK required, owing to a preceding word distinguishing NOM and ACC or owing to NOM $\neq$ ACC distinctness being only imposed for M ;
$-(e) s_{2} \quad$ CASE MARK: GEN required (being the first/only word in an NP able to get such marking), N and M ;
$-(e) r_{2} \quad$ CASE MARK: GEN required (being the first/only word in an NP able to get such marking), F and PL,
-(e) $m$ CASE MARK: DAT required (being the first/only word in an NP able to get such marking), N or M, (for $\mathrm{F}: \mathrm{DAT}=\mathrm{GEN}$ )
$-(e) n_{l} \quad$ CASE MARK: DAT required (being the first/only word in an NP able to get such marking), PL;
$-(e) n_{2} \quad$ OBLIQUE case (DAT and GEN, and includes ACC for M , where there is a distinctness requirement NOM $\neq \mathrm{ACC}$ ), but no distinctive CASE MARK required,
owing to a preceding case-distinctive word;
$[-e]-(e) n_{3} \quad$ PL after def (with def itself not distinguishing PL and F)

Note: No CASE MARK requirement for ACC

Observation: NPs with an indefinite article in NOM.SG NEUTER and MASCULINE are odd; they ought to be:
ein-es neu-e Zebra
ein-er neu-e Gorilla
(ein-e neu-e Kobra)
(7) A more familiar alternative of accounting for the exponents in (4)

| NOM $\quad$ def, adj following indef | N | $-a s,-e s$ |
| :---: | :--- | :--- |
|  |  | M |
| indef | $\mathrm{F} / \mathrm{PL}$ | $-e r$ |
|  | $\mathrm{~N} / \mathrm{M}$ | $-i e,-e$ |
|  | $\mathrm{F} / \mathrm{PL}$ | $-\varnothing$ |
|  | $\mathrm{SG}(\mathrm{N} / \mathrm{M} / \mathrm{F})$ | $-e$ |
|  | PL | $-e$ |
|  |  | $-e n$ |

ACC
def, adj following indef $N$

| N | $-a s,-e s$ | (=NOM) |
| :--- | :--- | :--- |
| M | $-e n$ |  |
| $\mathrm{~F} / \mathrm{PL}$ | $-i e,-e$ | (=NOM) |
| N | $-\emptyset$ | (=NOM) |
| M | $-e n$ |  |
| $\mathrm{~F} / \mathrm{PL}$ | $-e$ | (=NOM) |
| N | $-e$ | (=NOM) |
| M | $-e n$ |  |
| F | $-e$ | (=NOM) |
| PL | $-e n$ | $(=\mathrm{NOM})$ |

GEN def, indef
$\mathrm{N} / \mathrm{M}$
-es
F/PL -er
adj following def or indef
N/M/F/PL
-en
(or after indef -er)

DAT def, indef

N/M
F
PL N/M/F/PL
-em
-er
-en
-en
(=NOM)

(=GEN)
(8) What is the status of, and relation between, number and gender on agreement controllers? (inspired by Antonsen 1973)

- Noun template: [[Root-Formative $]_{\text {Stem }}-$ Inflection $]$
- possibly $[\text { Root }]_{\text {stem }}$ e.g., Mann, Frau, Haus
- What kinds of stems there are:

| direct $\quad$ e.g., | Kirch-e, Balk-e |
| :--- | :--- |
| oblique | Balk-en, Mensch-en |
| plural | Balk-en, Mensch-en, Frau-en, Kind-er, Uhu-s |
| derivational? | Kirch- (or is this the bare root?) |

- Can stems be formed of stems?
yes, in particular, a plural stem from a direct or an oblique stem: [Kirch-e-n]
- Are there regular relations between oblique stems and plural stems?
- There is considerable diversity of (lexically and semantically conditioned) stem formation, with plural stem formatives including:
$-e$ (with or without umlaut)
-er (with or without umlaut)
-(e)n
-s
umlaut
- Stem formation is derivational;
- Stems are controllers of agreement: categories distinguished by stems are possible agreement categories, including direct vs. oblique vs. plural
- Gender is assigned to stems e.g., die Bind-e, das Band, der Band, der Bund, die Band-e
- There are four genders: MASC, FEM, NEUT, PL
- Exponents of case (not cumulated with number):

|  | I | II | III |
| :--- | :--- | :--- | :--- |
| NOM | - | - | - |
| ACC | - | - | - |
| GEN | $-(e) s$ | - | - |
| DAT | $-(e)$ | $-n$ | - |

inflection class I: all neuter stems, masculine stems except weak [a stem-formational category] animates (e.g. Jung-e, Mensch) and those with suffix -us;
inflection class II: plural stems except those in $-n$ or $-s$;
inflection class III: all feminine stems, plural stems in $-n$ or $-s$, weak animate masculine stems, masculine stems in -us.
$\rightarrow$ three classifications: stem classes, inflection classes, agreement classes;
$\rightarrow$ as to relationships between classifications,

- stem classes are not co-extensive with agreement classes;
- only plural stems are always one agreement class, for all relevant distinctions of case and case-sets (direct, oblique);
- for all other stem classes (i.e., direct, oblique), agreement classes, for all relevant distinctions of case and case-sets, can only be circumscribed by additional subclassifications of stems (=gender);
- ditto for inflection classes: one inflection class (II) coincides with an agreement class, the others don't;
- there are certain dependencies of inflection class on agreement class and on stem class (e.g., If FEM, then not I and not plural stem -er). Or is it the other way round?


## C. What if you are plural but need a(nother) gender?

C.1. Plural nouns reanalysed as singular
(9) (native) pluralia tantum nouns used as singulars
+ANIMATE/+HUMAN
Ahnen der Ahn
Vorfahren der Vorfahr(e)
Eltern der/das Elter
Geschwister das Geschwister
Gebrüder der Gebruder???
Zwillinge der Zwilling

MHG geswistrede NEUT, collective SG as suggested by simplex der Bruder
Leute das Leut MHG dër liut'das Volk', PL liuti

Honoratioren
Konsorten
-ANIM
Akten die Akte, der Akt
Bauten
die? Baute [der Bau]
Trümmer
das Trumm
Scherben
Gliedmaßen
Ingredienzien
Möbel
Lebensmittel
Rauchwaren
Wirkwaren
Altwaren
Umtriebe der Umtrieb??? as suggested by simplex der Trieb
Gewissensbisse der Gewissensbiss??? as suggested by simplex der Biss
(10) renalysis of plural nouns as SG, in turn pluralizable:
der Beryll PL Berylle $>B(e)$ rille $\quad \Rightarrow \quad$ SG die Brille, PL die Brillen
biblíon (NEUT) PL biblía $\quad=>\quad$ SG die Bibel, PL die Bibeln
dertran $\quad$ PL trene $\quad=>\quad \mathrm{SG}$ die Träne, PL die Tränen
borsa SG coll $>$ die Bursch $\quad=>\quad$ SG indiv (male) der Bursch $(e)$
Frauenzimmer SG coll $\quad=\quad$ SG indiv (female) das Frauenzimmer
(11) similarly, ethnonymic nouns in plural (dative!), reanalysed as SG.NOM
(bei den) Bayern, Schwaben, Franken, Sachsen, Hessen, Pommern
gender: NEUT (like das Land)
(12) place names < DAT.PL

Baden, Soden (MHG sôt 'Brunnen'), -X-felden, X-hofen, X-hausen
München (ze dën münchen)
gender: also NEUT (towns are NEUT, regardless of die Stadt, die Burg, der Ort, die Furt, der Bach, even if they have these nouns as their second components)
(13) English plurals reanalysed as singulars

| coke-s | der Koks | no PL, mass noun |
| :--- | :--- | :--- |
| cake-s | der (das?) Keks | PL: die Keks-e |
| drop-s | der(das?) Drops | PL: die Drops(-e?) |
| new-s | die/eine News | PL: die ganzen News |
| jean-s | dieleine Jeans | PL: diese zwei Jeans |

(14) names of major Christian holidays, extending beyond one day

Ostern, Weihnachten, Pfingsten < DAT.PL governed by zu

MHG ze dën wîhen nahten
formally plural, but partly treated as SG for agreement purposes
PL in wish formulas, outside clause context
(?, or ellipsis: I wish you ___, i.e. these forms are accusative,
e.g. Schön-en Feiertag!)
frohe Ostern, gesegnete Weihnachten, erholsame Pfingsten!
(PL)/SG NP-internal agreement, with PL dialectal
diese Weihnachten, nächste Ostern, nach den Ostern
SG NP-internal; verb-agreement
Wir haben ein verregnetes Ostern gehabt
Weihnachten ist längst vorbei
Diese [PL] Weihnachten/Ostern/Pfingsten waren [PL]/*war [SG] recht turbulent
if SG, which gender? NEUT, formerly also FEM or MASC;
Weihnachten reformed as Weihnacht, with PL inflection dropped, and then FEM like the basic noun Nacht
old genitives: GEN.SG [dies] Michaelis, Martini
GEN.PL [dies] Allerseelen, Allerheiligen => gender in SG: NEUT
C.2. Low numerals as overdifferentiated agreement targets
(15) Plural gender agreement in earlier German, disappearing in MHG, but maintained a little longer (13/14/15 c.) in Upper German

| MASC | FEM | NEUT |  |
| :--- | :--- | :--- | :--- |
| blind-e | blind-e | blind-iu / blind-e | 'blind' (strong declension) |
| $d$-ie | $d$-ie | $d$-iu | 'the, those' |
| $d$-is-e | $d$-is-e | $d$-is-iu | 'these' |
| $s-i e / s-\hat{l} / s-i$ | $s-i e / s-\hat{l} / s-i$ | $s-i u$ | 'they' |

(16) Low numerals in Germanic, with gender contrasts only innovated in Germanic times rather than inherited from IE

|  | MASC | FEM | NEUT |  |
| :--- | :--- | :--- | :--- | :--- |
| Gothic | twai | twós | twa | 'two' |
| Old Norse | *rreis | $* \pi r e i s$ | $\pi r i j a$ | 'three' |
|  | tveir | tvcer | tvau | 'two' |
|  | $\pi$ rír | $\pi r i a ́ r ~$ | $\pi r i u$ | 'three' |
|  | fjórer | fjórar | fjogor | 'four' |


| Old English | twégen | twá | twá / tú |  | 'two' (twain) |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | bégen | bá | bá / bú | 'both' |  |
|  | тrie | тréo | тréo | 'three' |  |
| Old Saxon | twéne | twá / twó | twé | 'two' |  |
|  | thria | threa | thriu | 'three' |  |
| Old High German | zwéne | zwá / zwó | zwei | 'two' |  |
|  | drí | drio | driu | 'three' |  |
| early Modern |  |  |  |  |  |
| High German | zween | zwo | zwei | 'two' |  |

(17) OHG/MHG numerals 4-12 uninflected when preceding their noun, inflected when following their noun and when nominalized:

| OHG | uninflected | MASC/FEM | NEUT |
| :--- | :--- | :--- | :--- |
|  | feor, fior | fiori | fior $(i) u$ |
| MHG | vier | viere | vieriu |

forms: i-declension for MASC/FEM, pronominal/strong adj decl for NEUTER

| da geh-en | zw-een | Männ-er |
| :---: | :---: | :---: |
| there go-3pl | two-PL.MASC | $\operatorname{man}_{\text {Masc }}$-PL |
| ... | $z w-o$ | Frau-en |
|  | two-PL.FEM | woman $_{\text {FEM }}-\mathrm{PL}$ |
| ... | $z w-e i$ | Weib-er |
|  | two.PL-NEUT | female $_{\text {NEUT }}$-PL |
| ... | $z w-e i$ | $\emptyset$ |
|  | two-PL.NEUT | [any mixture of genders of antecedents] |

(19) Züüritüütsch (similarly elsewhere in "deep" Alemannic and Bavarian), with neuter tending to be generalized everywhere

|  | MASC | FEM | NEUT |  |
| :--- | :--- | :--- | :--- | :--- |
| NOM/ACC | zwee | zwoo | zwäi | 'two' |
| DATIVE | zeene(n) | zwoone(n) | zwäine(n) |  |
| NOM/ACC | drei | drei | drüü | 'three' |

DATIVE dreine(n) dreine(n) drüüne(n)
(20) Low numerals as overdifferentiated targets also in some Central Dravidian lgs (Parji, Kuruk2h2, Kol, Naikr`i, Gadba), Chechen-Ingush, and Nakh
(21) How does a complex higher numeral containing a very low numeral agree in gender (and number, if number isn't gender) in Chichewa (Bantu)?
chi-pewa chi-modzi
VII.SG-hat VII.SG.one 'one hat'
zi-pewa zi-sanu
VIII.PL-hat VIII.PL.five 'five hats'
zi-pewa zi-sanu ndi chi-modzi
VIII.PL-hat VIII.PL.five and VII.SG-one 'six hats'
(22) Possessive "adjectives" in Upper Sorbian, and how to agree with them:

| moj-eho | muz-ow-a | sotr- $a$ |
| :--- | :--- | :--- |
| my-GEN.SG.MASC | husband |  |
| Masc |  |  |
| 'my husband's sister' |  |  |

