On the Semantic Markedness of Φ-Features

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When linguists talks about features, they usually talk about
markedness as well. One reason is that feature systems are more
efficient if there is an unmarked default value contrasted with a
marked value. Nevertheless it is often difficult to determine
which feature value should be regarded as the unmarked one.
Φ-features are a particularly interesting case since they are
important in many different domains of linguistic inquiry, and
therefore markedness considerations arise in several different
ways.

To my knowledge, Greenberg (1966) was the first to investigate
markedness in the domain of ϕ-features. He presents several
tests from different domains for markedness. Later works (Noyer
1992, Harley & Ritter 2002), focus more narrowly on morphological
markedness. My focus, however, is semantic markedness. One
of Greenberg's test for markedness, which I discuss below as
<u>Dominance</u>, is semantic. I develop three other tests for semantic
markedness. Using these tests, I then investigate the semantic
markedness of person, number, and gender features. In the person
domain, I conclude that there is clear evidence that third person

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is featurally unmarked in all languages. I furthermore conclude that second person is semantically less marked than first person in English and other languages that lack the inclusive/exclusive distinction, while first and second person are equally marked in languages that have the distinction. In the number domain, I argue that the plural is unmarked in all languages. In languages that possess a dual, it seems furthermore that the dual is less marked than the singular, but not all tests are conclusive on this point. Finally for gender features, I argue that the marked value of the the feature distinguishing humans from non-humans can vary from language to language. However, in all languages that distinguish a masculine from a feminine gender, the masculine gender is featurally less marked.

1   Markedness and Features

The concept of markedness is applied differently in different lines of inquiry. At least, two types of markedness considerations are important for ϕ-features. This section introduces the way I apply them in this paper. On the one hand, we can ask which member in a binary feature opposition is marked. In this paper, I will refer to this kind of markedness as Category Markedness. For example, the question whether the singular or the plural is marked, which Greenberg (1966) investigated, is a question about category markedness. On the other hand, we can ask which one is marked in the relation of two features, which I will refer to as Feature Markedness. This type of markedness consideration was introduced by Troubetzkoy

(1939) and Jakobson (1969[1941]) in phonology and several recent works on ϕ-features have applied this concept in morphology (Noyer 1992, Harley & Ritter 2002). For example, the question which of the number features in a number system with plural, dual, and singular number is more marked belongs to this kind of markedness. In the remainder of this section, I introduce the two concepts of markedness in more detail.

The first type markedness consideration, feature markedness, is very basic in linguistic theory since they arise directly from the categorial nature of much of language. Human language is characterized by its reliance on discrete categorizations: For example, a speech sound may be categorized as either voiced or unvoiced, a phrase as nominal, verbal or belonging to some other category, and some referent as being one entity or not. Any such categorization process is sensitive to properties of the item that is categorized. However, this sensitivity could in principle be due to different mental mechanisms. For example in the case of a binary distinction, three different types of mechanism could be underlying the two categories A and B: language could be sensitive to the presence of a property that characterizes items of category A, assigning items without the property in question to category B or it could be sensitive to the presence of a property that characterizes items of category B and assign the other items to category A.[1] In a

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[1] In principle, a binary distinction could also be the result of many other kinds of mechanisms. It is conceivable that a categorization is sensitive to more than one property, and that these properties happen to be distributed in such a way that only two categories arise. However, it would be more

binary distinction then, whichever category directly reflects the presence of a certain feature, is regarded as marked. Actually, the case of a binary distinction is not just an example for me, but amounts to the general case since I will assume that division into more than two categories is actually a sequence of binary category divisions.

   Linguistic theories capture the discrete categories of language by means of features. One member of an opposition is said to possess feature F while the other member does not. Features are usually taken to reflect markedness: The marked member of category division is assigned a feature F, while the unmarked member is not. In this way, the markedness of a categorial distinction is directly expressed in featural linguistic representations. However, it seems to me that this is more of a convention than a logical relationship: in principle, a mental mechanism that assigns the feature F to the unmarked member of a categorial distinction is only minimally more complex than the other case.

   Linguistic entities themselves may be categorized too. Since the linguistic entity is typically already some structured array of features are the result of earlier categorizations, a categorization of a linguistic entity is often a recategorization. For example, a phrase may be categorized by its internal complexity and syntactic processes may be sensitive to this categorization (see Muyskens 1982 and others). Also, the correspondence between morphemes and bundles of semantic

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appropriate to regard such cases as ternary or more manifold distinctions where some of the categories happen to be empty, perhaps even necessarily so.

features can be viewed as such a recategorization: feature
bundles that correspond to the same morpheme belong to the same
category. Recategorization processes assign associate features
or feature bundles that were itself derived by categorization
with target categories. Considerations of markedness are usually
taken to arise with such recategorization mechanisms in two
ways. For one, they arise in the way that they also arise in
primary linguistic categorizations: the marked one of the target
categories corresponds to a property of the feature bundle that
the categorization mechanism is sensitive to. For example, a
linguistic mechanism may associates the feature bundle [A,B]
with the lexical item /x/ while it otherwise associates the
same position with the lexical item /y/. In this case, /x/
would be the marked member of the categorization of feature
bundles that the contrast between /x/ and /y/ reflects. In
distributed morphology (Halle & Marantz 1993, and others) and
other morphological theories with lexical insertion rules, this
type of markedness of lexical items is reflected by the ordering
of the lexical insertion rules.

The second type of markedness consideration associated
with recategorization rules rests on assumptions about the
correspondence between features and markedness. As I pointed
out above, it is usually assumed that only the marked member
of a binary category distinction receives a feature in a
linguistic representation. Since it is conceivable that
certain recategorizations provide evidence for whether or
not the linguistic entity categorized has a feature or not,

this would allow us to draw conclusions about markedness. In particular, such considerations arise in conjunction with a further assumption about recategorization mechanisms: The assumption that recategorization mechanisms associate marked features in the input with the marked member of the target categorization. This assumption entails, for example, that there cannot be a lexical entry /x/ that corresponds to the absence of the feature [A], or at least, that such a lexical entry is less likely to be found than one that corresponds to the presence of the feature.

Feature Markedness is the second general type of markedness consideration that is important for ϕ-features. It concerns the relationship between two categorial distinctions and their corresponding features. If it is the case that the categorial distinction underlying feature B can only be applied to individuals that possess a property underlying feature A, B is said to be a more marked feature than A. For example, only consonantal phonemes can possess the property coronal, and only countable referents can possess the property of being exactly one object, and therefore coronal and singular are considered more marked features than consonantal or countable. This type of markedness is directly entailed by the nature of two categorization processes, but of course often the mechanisms underlying categorization processes themselves are not evident.

Markedness relations among features have been argued to underlie feature geometric structures in phonology (Sagey 1986) and morphology (Harley & Ritter 2002). In such a feature

structure, the more marked feature is regarded as a dependent of
the less marked feature. Feature geometric structures express
at least two other claims about markedness: On the one hand,
the use feature geometry entails that deletion of a less marked
feature also removes any dependent feature connected to it. This
also applies to mechanisms other than deletion; for example,
spreading rules in phonology. One the other hand, only a
positive value can have a dependent in many feature structure
systems. This assumption entails that feature markedness is
directly related to category markedness: Only the member of a
category distinction that is marked by a feature can be related
to a less marked feature G.

For the following, category markedness is actually more
important than feature markedness. However, when comparing my
results with those of morphological theory, it is important to
keep in mind that the other notion of markedness exists.

2 Semantic Markedness

The two concepts of markedness--category markedness and feature
markedness--, which the previous section introduced, can both
be applied in semantics. Semantic mechanisms relate a mental
representation of a situation with a structured sentence
representation. Often semantic mechanisms can viewed as
categorizing aspects of a situation including the perspective
component that is part of any mental representation of a
situation. For example, the number features categorize groups
of objects in a situation by their numerosity. Similarly, tense

categorizes the time of some event in a situation to the time
that is 'now' under the perspective of the situation. In this
categorization process, category markedness applies: the marked
member of a category opposition is the one that possesses the
property determining the opposition. Feature markedness can
apply to pairs of semantic categorizations. For example, I argue
below that there is a feature [first person] in English that
entails the feature [participant person] which first and second
person in English share. Whenever there is such an entailment
between feature A and feature B, feature A is semantically more
marked than feature B.

The tests for markedness that I present in this section
can be best understood on the basis of a theory of sentence
interpretation. For concreteness, I adopt a set of assumptions
I argue for in recent work (Sauerland 2003a, in progress), but
I believe the tests results ultimately can stand independently
of these assumptions. I assume that ϕ-features, when they are
interpreted, are always interpreted as a presupposition on the
reference of an expression that denotes an individual. This
assumption is generally made for ϕ-feature marking on pronouns
(Cooper 1979, Heim 1994, and others). As an example, consider
the pronoun I in English. Within the Tarskian approach to
binding, the reference of a pronoun generally is the value the
variable assignment assigns to the index of the pronoun. For
concreteness, consider an occurrence of I that bears index 8. I
assume that the ϕ-features apply to this index as indicated by
the following structure.

ϕP

ϕ DP

[1,sing]   <u>pro</u>$_8$
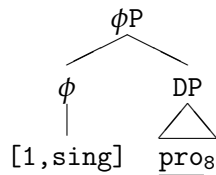
Since the pronoun bears index 8, the referent of pronoun will
be whatever is stored in position 8 of the variable assignment.
The ϕ-features of <u>I</u>, first person and singular, however,
presuppose that the referent of <u>I</u> have certain properties which
I discuss more generally below. In this particular example,
the referent must overlap with the speaker of the utterance (the
presupposition of first person) and the referent must be single
individual (the presupposition of the singular). The combination
of the two presuppositions entails that the referent actually
must be exactly the speaker of the utterance.

In the work referred to above, I argue that the
presuppositional account of ϕ-features should be extended to all
occurrences of ϕ-features that are interpreted at all. For the
following, only the case of definite descriptions is relevant.
In this case, the account carries over straightforwardly.
Consider the definite description <u>the man</u>. I assume that it has
the structure in (1) bearing the feature [sing]. The DP <u>the *man</u>
itself, I assume, is numberless and pick out the most salient
single man or group of men. But, the feature [sing] presupposes
that the referent be only a single individual.

ϕP

ϕ DP

[sing]   the *man
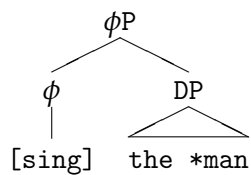
The semantic contribution of a ϕ-feature F on this approach is to divide the domain of individuals (which I assume to include pluralities) into two categories: those marked by feature F and those not marked by F. The entities marked by F are those that satisfy the presupposition of F, while the others do not. Of course, this approach only applies to interpreted ϕ-features. I assume that ϕ-features in positions other than a ϕ-head are never interpreted, but reflexes of purely syntactic agreement. These uninterpretable ϕ-features must be syntactically checked (in the terminology of Chomsky (1995)) or controlled (in the terminology of Corbett (1991, 2000)) by a ϕ-feature in a ϕ-head. This includes the ϕ-features on nouns, verbs, adjectives, and determiners. The syntactic mechanism underlying this process is not a concern in this paper, as I focus on the interpreted ϕ-features. Furthermore, there are two cases where the ϕ-features in the ϕ-head do not seem to be interpreted: grammatical gender (and possibly number) and ϕ-features on bound pronouns (Heim 1994, Pollard & Sag 1994, Kratzer 1998, von Stechow 2003). Both cases are not central to the following, and therefore I only sketch the directions I have pursued for this phenomena (see also Sauerland 2003a, in progress). For grammatical gender, on the one hand, I assume that indeed the relevant ϕ-features are not interpreted but are licensed by a checking relation with a noun. For bound pronouns, on the other hand, I believe that a different analysis of binding allows an account where all the ϕ-features of bound pronouns are interpreted.

Now consider the question what exactly is the semantic inventory of ϕ-features and what are their presuppositions. To address this question, I will develop a set of tests for semantic markedness. Underlying these tests is the insight that the presuppositions of ϕ-features are tied to a categorization of semantic entities. Consider abstractly the case of a binary division into two categories A and B. In this case, we expect one of the categories--let's say A--to be marked and therefore to correspond to a feature F. The unmarked category B, however, need not correspond to any feature. From the semantic point of view, then, F would be interpreted as the presupposition that the referent has whatever property characterizes category A. The absence of F, however, would need to be interpreted as the referent not having this property that characterizes A, since the absence of F marks membership to category B. In fact the interpretation principle that establishes this step is independently required. It is a very natural principle since it essentially a version of the Gricean quantity maxim applied to presuppositions. Heim (1991) first argued that this principle, Maximize Presupposition in (1), must be assumed and formally distinguished from the quantity maxim: in contrast to the quantity maxim, (1) in effect requires a speaker to be maximally redundant, rather than being maximally informative.[2]

(1)　　Maximize Presupposition: Presuppose as much as possible
　　　　in your contribution to the conversation.

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[2]The principle as stated in (1) is simplified. But for the account of purely presuppositional elements like ϕ-features this version is sufficient (see Heim 1991, Sauerland 2003b).

Because of (1), the presuppositional feature F must be used
whenever its presupposition is satisfied. This entails that
the absence of F satisfies (1) only in case the referent does not
satisfy the presupposition of F. This then entails that, if the
referent is known to belong to either category A or B, it must
belong to category B.

2.1 Dominance

Of the tests for markedness that Greenberg (1966) presents,
only one is semantic in nature. He attributes this test to
Arab grammarians and refers to it as taghlīb ('dominance').
Givón (1970) uses the term resolution rule (see also Corbett
(1991)), but I adopt the term Dominance. Dominance is exhibited
in conjoined noun phrases and other cases of reference to
pluralities when the ϕ-feature specifications for person or
gender of the conjuncts (or member of the plurality) differ.
In the case of gender, the less marked gender is the gender of
the entire coordination. For example, in Czech, the coordination
of a men's name and a women's name in (2) requires masculine
agreement on the verb, which argues that masculine is less marked
than feminine in Czech.

(2)   (Vanek 1977, 31)

       Jan a   Věra šl-i   do biografu
       Jan and Vera went-masc.plur to the movies

       'Jan and Vera went to the movies.'

The dominance test must be applied with care to control for the
possibility of agreement with one conjunct. This has been most

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extensively discussed for Arabic, where conjoined postverbal
subject in general allow two agreement patterns: Agreement
with the entire coordination or agreement with only the first
conjunct. (3a) illustrates the latter pattern. Aoun et al.
(1994, 1995) argue that first conjunct agreement does involve
clausal coordination rather than coordination of two NPs,
and show several ways to control for this possibility. For
example, group level predicates like <u>meet</u> in (3b) and binding
of a reciprocal as in (3c) require plural agreement.

(3)   Lebanese Arabic (Aoun et al. 1994: (30b), (43a), and
        (48b))

        a. Keen   Kariim w   Marwaan ?am yil?abo
            was.3mascsing Kareem and Marwaan asp playing
            'Kareem and Marwaan were playing.'

        b. *Lta?a   Kariim w   Marwaan
            met.3mascsing Kareem and Marwaan

        c. *Bihibb   Kariim w   Marwaan ba?dun
   love.3sing Kareem and Marwaan each other

Furthermore, Corbett (1991) points out that, if there is
agreement with one conjunct only in any language, this must
apply to all ϕ-features at the same time. If the conjuncts
are singular, plural agreement on the verb or another target
therefore indicates that, indeed, agreement is with the entire
conjunction.

   A note is also in concerning the notation of ϕ-feature
bundles. The decomposition of the categories into features
is not evident, and would also not be informative before it is
discussed in detail. This holds especially for the most unmarked

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category of each type which would be featurally unmarked. At
this point, it is convenient to use values like [masc] and [fem]
as abbreviation for feature bundles, which may even be empty. It
should be kept in mind, that these feature bundle abbreviation
are distinct from features. This is especially confusing in
those cases where I ultimately conclude that a feature with the
same name exists.

   I assume that coordinated DPs involve three sets of
ϕ-features: one for each conjunct, and one for the whole
conjunction. Consider the structure for the subject of (2).

(4)   Jan a Věra
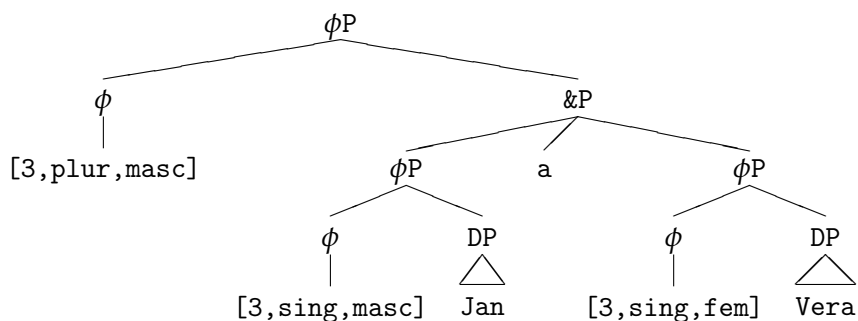
   The presupposition of [masc] in the highest ϕ-head is
satisfied, while that of [fem] would not be satisfied in the
same position. For the features underlying the gender features
this suggests that the features in [fem] presuppose that all
members of a referent are female. Then [masc] could be unmarked
and the maximize presupposition maxim would entail that masculine
can only be used with referents that are not all female. Note,
however, that this reasoning in principle could also reversed:
We could assume that [masc] presupposes that a group contain male
members, while [fem] is unmarked. Then maximize presupposition

would entail that [fem] could be used for all groups that do
not have any male members. Therefore, dominance alone cannot
be used to establish a particular markedness claim, but only
in conjunction with assumptions about the logical properties of
features. In the system where [fem] is marked, on the one hand,
the feature bundle [fem] is downward entailing in the following
sense: If a semantic entity X satisfies the presupposition of
[fem], any non-empty part of X also satisfies the presupposition
of [fem]. In the system where [masc] is marked, on the other
hand, the feature bundle [masc] is upward entailing: if X
satisfies the presupposition of [masc], any Y that X is a part
of also satisfies the presupposition of [masc]. For gender,
it seems intuitive that the gender features should be downward
entailing. But only when we take the results of other markedness
tests in account, will we really be in a position to conclude
that the masculine gender is less marked than the feminine one.

   The dominance test cannot be applied to number, as Greenberg
already notes, because the number properties of a coordination
are necessarily different from that of the coordinates. However,
it can be applied to person. Consider the German example (5),
which shows that second person agreement is required with a
coordination of a third person and a second person.

(5)   Tanja und Du sollte-t   miteinander   reden.
       Tanja and you should-2plur with each other talk
       'Tanja and you should talk with each other.'

In this case, too, we cannot directly conclude which category
is characterized by a marked feature. We could assume that 3

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is marked by a downward entailing feature presupposing that the referent does not contain the addressee as an element, while 2 is unmarked. Or we could assume that 2 is marked by an upward entailing feature that presupposes that the referent contain the addressee as an element, and 3 is unmarked. Again only the results of a further markedness tests can really determine the full analysis, and I show below that person features are upward entailing. Therefore, dominance works in opposite ways with gender and person features: with gender, the least marked category is inherited by the coordination while it is the most marked one with person.

2.2 Quantification

The second test for semantic markedness makes use of the fact that the reference of a DP can vary when the DP occurs in the scope of a quantifier. The interesting case if some of the referents belong to one category and some to the other of a categorial distinction. In this case, we expect that the referring DP will be marked with the less marked feature. The marked feature should only be used if all the referents belong to the marked category.

To illustrate this point, consider the facts in (6) that concern verbal tense in English Sauerland (2002). Tense marking in English distinguishes between events that took place in the past and events that did not. In (6), however, tense occurs in the scope of a universal quantifier that ranges over the Tuesdays of the present month. There are three cases to consider. The

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first two are not revealing anything about markedness: If
all the Tuesdays quantified over are in the past--the time of
utterance is after the last Tuesday of this month--the past tense
(6b) must be used. If all the Tuesdays quantified over are not
in the past--the time of utterance is before or on the first
Tuesday of this month--the present tense (6a) must be used. The
relevant test case for markedness, however, is: If some of the
Tuesdays quantified over are in the past, and some are not--the
time of utterance is after the first Tuesday of this month, but
on or before the last Tuesday--the present tense (6a) must be
used.

(6)   a. Every Tuesday this month, I fast.
       b. Every Tuesday this month, I fasted.

Since in the case of mixed reference the present tense is used,
it can be concluded that the present tense is unmarked, while
the past tense is marked. Within an analysis of tense where
tense is interpreted as a presupposition on the reference of a
time variable (Abusch 1997 and others), this insight is captured
by the following lexical entries: the past tense presupposes
that the referent of the time variable is in the past of the
utterance time, while the present tense has no presupposition.
The maximize presupposition maxim will then ensure that the
present tense is only used in case the presupposition of the
past tense is not satisfied. Therefore, past tense is used with
past times and present tense with present times. In the scope of
a quantifier, though, the asymmetry observed in (6) is predicted:
the marked value [past] can only be used if all referents satisfy

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the presupposition, while the unmarked value [present] can be used in all other cases. The quantification test for markedness is the most useful one of the tests for markedness that I discuss in this paper, since it unequivocally indicates which category is marked.

2.3 Epistemic Status

A further test for markedness can be gained from considering the epistemic status of semantic properties characterizing one category. In many cases of markedness contrasts, the marked member entail that the speaker is certain that some property holds, while the unmarked member only entails that the speakers takes it to be possible. Consider for example the contrast between definite vs. indefinite marking on English noun phrases (Heim 1991).

(7)   a. Robert caught the 20 ft. long catfish.

      b. Robert caught a 20 ft. long catfish. (Heim 1991,

         (121))

The definite version (7a) can only be used if the speaker is certain that there is a unique 20 ft. long catfish. The indefinite, however, does not require the speaker to be certain that there be a second 20 ft. long catfish. For (7b), it is sufficient that the speaker believes that it is possible that another 20 ft. long catfish exist. Therefore, Heim (1991) concludes that definiteness is marked, while indefiniteness is unmarked.

With tense marking, the epistemic status also correlates with markedness. Consider the following scenario: an expedition left from our place a couple of weeks ago, and we have lost contact. We are wondering how many provision they still have. In this scenario, (8) could be used, but the same sentence with the past tense would not be felicitous unless I knew for sure that the expedition already ran out of supplies.

(8)   The water is running out the same day is the food is.
       But, I don't remember when exactly that is. It might have
       been last week already.

Example (8) shows that the present tense only entails that the event described might take place at the present time.

The contrast in epistemic status between the two members of a categorial distinction follows directly from the semantic implementation of the markedness contrast via the maximize presupposition maxim. To use the marked member of a morpheme pair, the speaker must be certain that its presupposition is satisfied. Otherwise the unmarked member must be used. Therefore, it is expected that semantic categorizations divide into a category that is characterized by some property that must certainly obtain, and a category that is characterized by the opposite possibly obtaining. However, this does not entail that the member characterized by certainty of some property P is necessarily the marked member. It could be that the marked member is characterized by the property 'P is possible', and then it would follow that the unmarked member is associated with the epistemically stronger property that P be necessarily

false. However, in general, the stronger epistemic status seems to correspond to markedness. Likely this is the case because the underlying properties characterizing semantic categories are not epistemically modalized at all.

2.4 Emergence after Blocking

The final test for semantic markedness that I am aware of makes of phenomena that block the marked form. In that case, the unmarked form is predicted to emerge. The blocking of a form could obtain for a variety of reasons: morphological, syntactic, or pragmatic. The identification of such blocking principles is not always straightforward, and typically tied to a particular language.

For example, the phenomenon of singular <u>they</u> in English (Huddleston & Pullum 2002, Johnson 2004) could be analyzed as a case of blocking with emergence of the unmarked form. In some dialects of English, the plural pronoun can be used with singular reference when the referent was introduced by an indefinite as in (9) or quantifier.

(9)   a. Some student left their umbrella.

       b. One student in the class got an F. I bet they are not
           happy about that. (Johnson 2004)

It seems reasonable to assume that English speakers who use singular <u>they</u> have adopted a convention to avoid the third person singular forms of pronouns in the circumstances described above. The fact that in this case the plural can be used then shows that the plural is unmarked.

The emergence of the unmarked form if the marked form is
blocked follows from the interpretation system based on maximize
presupposition that I proposed. Recall that generally use
of the unmarked form is licit whenever the marked form is not
applicable. In the examples considered in the previous sections,
the marked form was not usable because its presupposition was
not satisfied. However, we expect the unmarked form to also
be usable when the marked form is blocked for other reasons.
Precisely this is what we observe in cases like singular they
where the marked form (the singular) is blocked by a pragmatic
convention.

3 Semantic Markedness of ϕ-Features

3.1 Person

Person features are interesting because they are
cross-linguistically very similar (Cysouw 2000, Siewierska 2004).
The main point of variation in person exists between languages
that draw an inclusive/exclusive distinction in the first person
plural, and those that do not. One further, peripheral area
where variation exists is logophoricity (see, for example,
Schlenker 2003a). However, the consideration of logophoricity
with respect to semantic markedness is outside the scope of the
present paper, in particular since the relevant facts are not
readily available.

There is clear evidence from all four of the markedness tests
that third person is the most unmarked feature bundle among the

person specifications. In section 2.1 on dominance, we already saw by means of example (5) that second person is more marked than third person in German. Since first and third plural verbal agreement are homophonous in German, the dominance of first over third person is harder to show directly. However, it is entailed by the observation that first person dominates second person that (10) illustrates.

(10) Du und ich sind   einander   noch nie   begegnet.
      you and I   are.1plur each other yet   never met
      'You and I haven't met yet.'

Corbett (1991, 262) presents person dominance data from Czech. The two facts in (11) show that in Czech too first and second person dominate third person.

(11) a. bratr   a   já se   uč-íme   hrát   na klavír
          brother and I   self.acc teach-1plur to play on piano
          'My brother and I are learning to play the piano.'

      b. tvůj otec   a   ty jste   si   podobni
          your father and you be.2plur self.dat alike
          'Your father and you are alike.'

   Consider the quantification test next. Consider the English fact in (12) in a context where us refers to a group of three people, the speaker, the addressee, and a third person. (12) shows that the third person pronoun his is used when the reference of the pronoun varies between first, second, and third person.

(12) Everyone of us has to call his mother.

The third markedness test, the epistemic status, can be executed with examples like (13). Use of the third person does not rule out reference to the speaker as impossible.

(13) The winner will be a lucky guy. He could be me.

Initially, it may seem that facts like (14) show that even necessary reference to the speaker by means of a full DP requires third person marking. But, I argue now that actually a full DP never can necessarily refer to the speaker.

(14) My wife's husband is a lucky guy.

Note that the use of (14) brings about a special semantic effect: By asserting (14), I would express that even if somebody else had married my wife that other guy would be lucky. This difference between (14) confirms my proposal because it shows that (14) requires a consideration of the counterfactual worlds where I am not my wife's husband, and in this circumstance the third person must be used. The fact that first person is impossible with full definites, however, follows from a further pragmatic principle which forces use of a pronoun whenever the referent is certain to be the speaker (cf. Schlenker 2003b).

Finally, consider data that show the emergence of the third person in case another person is blocked. The data I claim to show this effect are date involving politeness forms of pronouns. I use German in (15) to illustrate this point. In German, the third person plural can be used to refer to the addressee or the addressees if the relationship between speaker and hearer is formal.

(15)   Könnten sie   bitte etwas   rücken!
       Could   pro.3plur please a little move
       'Could you please move over a little!'

I propose to understand (15) as the result of blocking of the second person address in formal conversation in German. Therefore the unmarked third person emerges. Note that diachronically the use of the third person plural for address in German derives from Spanish where the phrase your honors was used for formal address. But, this derivation cannot be the synchronic explanation of the German and, in his typological overview Head (1978) lists a number of other languages as using third person forms for polite address including some like Eastern Pomo, which, as far as I know, where not in contact with Spanish.

Now consider the relationship of first and second person both in languages like English without an inclusive/exclusive distinction in the first person plural and also in languages with this distinction. Based on morphological evidence, Noyer (1992) argues that three person features are available to languages: speaker, addressee, and participant. Noyer understands these to indicate the semantics of including the speaker, including the addressee, and including at least one of the participants. Consequently, Noyer also points out that the feature participant must be present if and only if at least one of speaker and addressee is present.

Note though first that the lexical entries of Noyer (1992) are not precise enough on one point. This is illustrated by (16) which would be used to address a group.[3]

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[3]Ede Zimmermann (p.c.) first brought such examples to my attention.

(16)   The one of you I have in mind is/*are special.

Note that the subject in (16) must refer to one of the people
addressed, but nevertheless third person agreement is required
on the verb. It seems therefore that second person in English
presupposes that a referent so marked contain all of the
addressees. The feature participant, on the other hand, does
not presuppose containment of all the participants, but only of a
either the speaker or the entire group of hearers. I will make
use of Noyer's features with the semantics understood so as to
yield the correct result for (16).

For a languages with the inclusive/exclusive distinction, I
follow Noyer's analysis that the system is driven by the features
speaker and hearer. Consider, for example, the plural pronominal
forms of Sursurunga (Noyer 1992, 172). The first person
inclusive form git is used when the group referred to includes
both the speaker and the addressee. In analogy with (16), I
would expect, but do not know for a fact that git cannot be used
when a group of people is addressed, but not all addressees are
part of the referent of git. The category of referents that
uses git should be the most marked of the Sursurunga paradigm.
Less marked should be the first person exclusive gim and the
second person gam. The least marked form should be third person
di. In the Sursurunga paradigm, the relative markedness of
the first person exclusive and the second person is not easy
to determine. The dominance test cannot be applied because a
coordination of a first and a second person is to be marked with
the first person inclusive. While this shows that the first

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person inclusive is the most marked form, it leaves open the relationship of the exclusive and the second person. The other possible tests, however, I discuss below for English, and, as I will argue, they are difficult to apply as well. If Sursurunga was to make only use of the features speaker and hearer, we not expect first person exclusive and second person to exhibit a markedness contrast.

Now consider languages without the inclusive/exclusive distinction. I would like to claim that, in these languages, the feature addressee is not present, but only the feature participant which is shared by first and second person. This claim entails that the feature specification [speaker, participant] of the first person is more marked than the specification [participant] of the second person. The result of the dominance test clearly argues in favor of this markedness conclusion. In English, this cannot be seen from the verbal agreement, but it is clear when a pronoun is used as in (17).

(17)   You and I, we, are special.

If the category first person was not more marked than second person, the dominance of first over second person would be unexpected. This dominance relationship also holds in German ((18a)) and Czech ((18b), from Corbett 1991, 262).

(18)   a. Du und ich sind/*seid   etwas   besonderes.
           you and I   be.1plur/*be.2plur something special
           'You and I are something special.'

       b. já a   ty zůstan-eme   doma
           I and you will stay-1plur at home
           'You and I will stay at home.'

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Note that these dominance data concern exactly the case where the inclusive form emerges in language like Sursurunga.

Unfortunately the other markedness tests do not unequivocally support the conclusion that first person is more marked than second person. Consider the quantification data in (19), where clearly third person, rather than second person agreement is forced.

(19)   a.   One of you and me has/*have to go.

       b.   Each of you and me has/*have to go.

I believe the explanation for this unexpected third person agreement might be related to the presence of the equivalent formulations for each of (19) in (20). It might be that the quantification data in (19) can only be used under circumstances similar to (14).

(20)   a.   You or me have to go.

       b.   Both of you and me have to go.

For the epistemic status test, consider the following scenario: I am writing the message in (21) that I will put in a bottle and throw in the ocean. The recipient might be me or any other person. I expect to forget what I write, so if I were to find the message the content would also be of interest to me.

(21)   To the finder: I have hidden a treasure for you.

At least considering the literal German translation of (21), it does seem to me that (22) allows the possibility of me finding the message myself. This might indicate that you does not

exclude the possibility of first person reference, and therefore would support the claim that first person is more marked than second person. However, the judgement is very subtle. I also perceive (22) to be possible which would be unexpected if you did not allow first person reference.

(22)　To the finder: You might be me. In that case, ...

Finally for the last test of markedness: I know of no examples that could be considered as blocking of the first person where the second person emerges as the unmarked form.

Overall then I have argued that third person is the least marked person category in all the languages I considered, and probably universally so. In languages with the inclusive/exclusive distinction, first person exclusive and second person probably do not stand in a markedness relation, but first person inclusive is more marked than any other person. In languages without the inclusive/exclusive distinction, on the other hand, first person seems to be more marked than second person. These markedness results suggest that languages with the inclusive/exclusive distinction possess the two person features [speaker] and [addressee], while languages without the distinction have the person features [speaker] and [participant].

3.2　Number

The most frequent number distinction is that between the singular and the plural. Sauerland et al. (2004) discuss the relative markedness of these two categories in great detail. That article presents data not only from the three markedness tests other than

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dominance, which is inapplicable to number, but also further experimental evidence. The paper argues that all the data uniformly show that the plural is less marked semantically than the singular. I do no summarize these results here (though I could in the final version of this paper), but refer the readed to the published paper.

Now consider how the dual number relates to singular on the one hand and plural on the other. Since the dominance test cannot be applied with number, I was not able to find much relevant data on this question in the literature. Head (1978) and Corbett (2000) report that a couple of languages use dual pronouns for a specific level of formal address. Such data indicate that in these languages (Sursurunga, Bouma Fijian, and others) the dual is less marked than the singular. However, one would like to see additional data on this phenomenon, for example, which form is used when the addressee is a plurality of individuals requiring this specific level of politeness.

My own preliminary investigation of Slovene indicates as well that here the dual may be less marked than the singular. As far as I know, the only European languages that have dual marking productively are Slovene and Sorbian. (23) illustrates the Slovene dual.[4]

(23) Umij si   obe rok-i
      wash self both hand-dual

      'Wash both hands!'

But even in Slovene, the dual is subject to an additional
constraint. Namely, the dual is restricted to coordinations
of two singular conjuncts, noun phrases where two or both occur
overtly, and occurrences of pronouns or noun phrases that have
dual antecedents. For example, the plural is required and the
dual cannot be used in (24) ((24b) in contrast to (23)). This
is particularly surprising in (24) because almost all people have
two hands. But even in a scenario where it is certain that the
person addressed has two hands, the dual (24b) cannot be used.

(24) a. Umij si   rok-e
          wash self hand-plur
          'Wash your hands!'

      b. *Umij si   rok-i
          wash self hand-dual

I take (24) to show that the dual is also subject to non-semantic
licensing condition, and that if the dual is blocked the
plural emerges. These data argue therefore that the plural is
semantically less marked than the dual.

    Now consider the quantification test to determine the relative
markedness of singular and dual in Slovene. Unfortunately, the
data are equivocal. The scenario for which the sentences in (25)
were tested is one where some students brought one book while
other students brought two books, but no student brought more
than two books. In this scenario, the plural seems impossible,
but both the dual and the singular are possible.

(25) a. Vsak študent je   prinesel   s   seboj svoj-o
          every student be.sing brought.masc with self his.sing
          knjig-o
          book-sing

'Every student brought his book.'

b. Vsak študent je   prinesel   s   seboj svoj-i
   every student be.sing brought.masc with self his.dual
   knjig-i
   book-dual
   'Every student brought his books (dual).'

c. Vsak študent je   prinesel   s   seboj svoj-e
   every student be.sing brought.masc with self his.plur
   knjig-e
   book-plur
   'Every student brought his books.'

This result initially is entirely unexpected from the perspective

of semantic markedness since it would entail the contradictory

statements that the singular is simultaneously less and more

marked than the dual. I believe though that the data do not

speak to the issue of markedness at all. Note that in examples

like (26) the correct number morphology is determined by the

order of the disjuncts eno ('one') and dve ('two').

(26) a. Vsak študent je   prinesel   s   seboj eno ali
        every student be.sing brought.masc with self one or
        dve knjig-i
        two book-dual
        'Every student brought one or two books.'

b. Vsak študent je   prinesel   s   seboj dve ali
   every student be.sing brought.masc with self two or
   eno knjig-o
   one book-sing
   'Every student brought one or two books.'

Agreement with one conjunct only suggests that disjunction

really applies at a higher level than the numbers themselves

as in one book or two books. Note this would be analogous

to the analysis of Aoun et al. (1981) for first conjunct

agreement in Arabic mentioned in section 2.1 above. For the data in (25) where also both singular and dual number are possible, it may then be similarly possible that at some level of representation the pronoun corresponds to a disjunction of similar to <u>one book or two books</u> or the same with the reverse order of the disjuncts.

The epistemic status test, however, seems to corroborate that the dual is less marked than the singular. For this test, I considered (27) in the following scenario: I want to have someone over for dinner, but I only enough food in the house to invite either Bill and his brother or John, who eats for two people.

(27) Naj pride-ta   točno   ob osmih
      part come-3dual exactly at 8-loc

      'They (dual) should come at 8 o'clock.'

In this scenario, the subject pronoun in (27) refers to the people I invite. But, this may be either one or two people. Since the dual as in (27) can be used, while the singular is not possible, shows that the dual is less marked than the singular.

In sum, then the plural is clearly less marked than the singular. The dual, on the other hand, seems to have an intermediate degree of markedness, higher than the singular, but lower than the plural.

3.3 Gender

Gender is the most heterogeneous of the ϕ-feature categories from a typological as well as from a semantic perspective. From

the semantic perspective, it is striking frequently gender is
a purely formal reflex of morphological classes rather than
being semantically determined. Furthermore gender morphology
often indirectly expresses other ϕ-features as well because
gender distinctions are in many languages only found with
the third person, though there are several languages like
Arabic and Hebrew that have gender marking with other persons,
too (Siewierska 2004, 104-6). I focus here on semantically
contentful occurrences of gender in the third person, but even
that domain I can only partially cover. Since gender is such
a complex phenomenon, I focus on the following two points:
Languages that draw a ±human gender distinction vary with
respect which of the values is marked. In languages that draw
a masculine/feminine distinction, however, the masculine gender
is uniformly less marked than the feminine.

Consider first the variation with among languages drawing the
±human distinction. Corbett (1991) discusses gender dominance
in coordination in several languages, and points out that
dominance works in different ways for the ±human distinction.
On the one hand, there are languages like Luganda (Corbett's
discussion is based on Givón (1970)). In Luganda, the gender
class 2 on the verb indicates that a group consists out of humans
as in (28a), while class 8 is the verbal agreement used with
non-humans as in (28b).

(28)   (Corbett 1991, 274)

     a. ek-kazi,   aka-ana   ne olu-sajja ba-alabwa
       5-fat woman 12-small child and 11-tall man 2-were seen

'The fat woman, the small child, and the tall man were

seen.'

b. en-te, omu-su,   eki-be   ne ely-ato bi-alabwa
    9-cow 3-wild cat 7-jackal and 5-canoe 8-were seen
    'The cow, the wild cat, the jackal, and the canoe were

seen.'

Now consider the case of a mixed group consisting partially
consisting of humans and partially not. The crucial cases
Corbett (1991) gives are in (29), where we see that only the
non-human gender 8 agreement is possible. Corbett points out
that (28a) is not fully acceptable in all dialects and registers
of Luganda, but still is always preferred over (29b). This
contrast shows that in Luganda non-human gender dominates human
gender.

(29) (Corbett 1991, 274)

a. $^?$omu-sajja ne em-bwa-ye bi-agwa

1-man and 9-dog-his 8-fell

'The man and his dog fell down.'

b. *omu-sajja ne em-bwa-ye ba-agwa

1-man and 9-dog-his 2-fell

On the assumptions about markedness discussed in 2.1 above, and
in particular the assumption that gender features are always
downward entailing as discussed above, (29) indicates that
non-human is the more marked gender in Luganda. Other languages

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that Corbett reports to behave like Luganda are Luvale, Dzamba, Likila, and Lingala, which are all Bantu languages, but also Archi, a Caucasian language.

However, the opposite dominance pattern also exists. Consider Tamil, which distinguishes between human and non-human in the plural as shown in (30). (In the singular, Tamil furthermore draws a distinction between masculine and feminine gender.)

(30)   (Corbett 1991, 269)

      a. raaman-um mukukan-um va-nt-aaŋka   (p. 269)
          Raman-and Murugan-and come-past-3plur.human
          'Raman and Murugan came.'

      b. naay-um puune-yum va-nt-atuŋka
          dog-and cat-and   come-past-3plur.neut
          'The dog and the cat came.'

The crucial case of mixed reference is (31), where human agreement is obligatory. (31) directly contrasts with the Luganda result in (29). I conclude from these data that the human gender is more marked in Tamil.

(31)   (Corbett 1991, 269)

     raaman-um naay-um va-nt-aaŋka
     raman-and dog-and come-past-3plur.human

     'Raman and the dog came.'

Corbett also mentions that Shona, which is a Bantu language like Luganda Hawkinson & Hyman (1974), behaves in the same way as Tamil. At present, I have no data from other tests available regarding the markedness of ±human. On the basis

of dominance, however, I conclude that the marked value of the ±human categorization is cross-linguistically variant.

Now, however, consider languages that distinguish between masculine and feminine gender. (32) shows that [masc] dominates [fem] in French.

(32)   (Corbett 1991, 279)

```
      un      pére   et une   mére   excellent-s
      a.masc father and a.fem mother excellent-masc.plur
```

'an excellent father and mother'

Example (33) argues that [masc] also dominates [fem] in Czech.

(33)   (Vanek 1977, 31)

```
      Jan a   Věra šl-i           do biografu
      Jan and Vera went-masc.plur to the movies
```

'Jan and Vera went to the movies.'

Admittedly this still a small sample, but, if we assume that Corbett would have reported any languages that show the opposite pattern from French and Czech, a generalization emerges. Therefore it seems at least likely that [masc] is universally less marked than [fem].

German, however, seems to be an exception to this generalization. German has generally grammatical gender, but with human individuals gender can also be interpreted. Hence, the pronouns in (34) can alternatively be neuter like their antecedent, or they can switch to the natural gender (female in both cases).

(34) a. Kein Mädchen glaubt, dass sie/es überfordert
        no   girl   believes that she/it overchallenged
        wird.
        is
        'No girl believes that she is overchallenged.'

    b. Jedes weibliche Mitglied will, dass man sie/es in
       every female   member   wants that one her/it in
       Ruhe lässt.
       peace leaves
       'Every female member wants to be left in peace.'

Now consider the quantification test for interpreted gender

marking in German. The relevant facts in (35) need to be

considered in a scenario with either children of both genders

are around (for (35a)), or members of both genders for (35b).

(35) a. Kein Kind glaubt, dass *er/*sie/es überfordert
        no   child believe that *he/*she/it overchallenged
        wird.
        is
        'No child believes that she is overchallenged.'

    b. Jedes Mitglied will, dass man *ihn/*sie/es in Ruhe
       every member   wants that one him/her/it   in peace
       lässt.
       leaves
       'Every member wants to be left in peace.'

In my judgement, a gender switch is impossible in (35) and only

the grammatical neuter gender can be used. This could be taken

to indicate that neither masculine nor feminine are unmarked

in German. However, since German gender is so restricted

semantically, the phenomenon in (35) might also be due to some

other factor.

   In sum, this section has argued in favor of two

generalizations concerning gender: Languages that draw a ±human

gender distinction vary with respect which of the values is
marked. In languages that draw a masculine/feminine distinction,
however, the masculine gender is uniformly less marked than the
feminine.

4 Conclusion

[to be written]

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