Is prominence a useful concept for the theory of syntax?

Ralf Vogel

October 27, 2014

1 Introduction

Linguistic theory has established a number of analytical dichotomies in describing the relations and interdependencies of linguistic units. The notion of prominence is among them, but it appears to me to be a much fuzzier concept than dichotomies like "marked–unmarked", "head–dependent", "topic–comment" etc. Those dichotomies have the advantage that they are restricted to particular domains. Prominence is a much broader, and thus fuzzier, notion that can be connected with all kinds of linguistic phenomena. This also holds for morphosyntactic prominence, the focus of this paper.[1]

My task is threrefore twofold. I will carry out an explication of morphosyntactic prominence and, in a second step, I will evaluate how useful such a conception could be for syntactic theory.

2 Prominence and asymmetries

I will start with the following first approximation towards a definition:

Morphosyntactic prominence (to be revised) Any kind of **asymmetry** between morphosyntactic units can be interpreted as a prominence relation among those units.

Prominence is best conceived as a *relative* concept. That means for morphosyntax that only in comparison with other units of the same kind the prominence status of a morphosyntactic element can be determined, but not in isolation. Furthermore, we have to distinguish two different situations:

[1] Here and throughout, I use the notion "morphosyntax" rather than "syntax", in order to include syntactically relevant aspects of inflection.

1. A morphosyntactic asymmetry is used to *iconically* represent non-morphosyntactic prominence.

2. A morphosyntactic asymmetry *instantiates* morphosyntactic prominence.

Only in the second case, we can speak of truly morphosyntactic prominence. I have the suspicion that such cases are rather rare. Examples of the first kind are much more frequent. They can be considered as *borrowed morphosyntactic prominence*. Let me first give an example of the first, iconic kind. Word order is a very natural candidate for an asymmetry among morphosyntactic units. In (1), we have quantifiers in both subject and object. Both interpretations in (1-b,c) are possible. In (1-b), the universal quantifier has scope over the existential quantifier, in (1-c) it is the other way around.

(1-a) can be interpreted as the iconic mapping (semantics ➔ morphosyntax) of the relative scope in (1-b) onto the word order in (1-a). Resolution of such scope ambiguities in accordance with word order is indeed the preferred strategy.

(1) a. Every student speaks at least one foreign language.
b. $\forall x[student'(x) \rightarrow \exists\, y[foreign\text{-}language'(y) \wedge speak'(x,y)]]$
c. $\exists\, y[foreign\text{-}language'(y) \wedge \forall\, x[student'(x) \rightarrow speak'(x,y)]]$

Can relative scope be considered as a prominence relation? I suspect that in this case linguists would hesitate to do so. At least, I do. The understanding of prominence that I pursue in this paper implies that a prominence relation requires a further asymmetry among the involved units: if A is more prominent than B, then A has some privative property that B lacks. And also: A is more prominent than B *only* with respect to that particular property. There could be another property with respect to which B is more prominent than A.

In (1), the two quantifiers lack such a prominence inducing property. They are equal. The only asymmetry we observe is the relation between them. The same is true of word order: (1-a) can even be interpreted as an iconic mapping of interpretation (1-c). All we need to do is to declare that relative scope maps iconically onto consequence rather than precedence.[2]

In fact, both precedence and consequence are used to map prominence relations iconically e.g. in German, where roughly the following holds (though not without exceptions):

[2]The fact that this choice sounds rather unnatural could be seen as evidence for a general mapping preference for relative scope, perhaps cognitively motivated.

(2) Information structure mapping in German
   a. topic precedes non-topic
   b. focus follows non-focus

A topic is discourse-prominent *within the context* of the current utterance, as highly salient given information. A focus is most prominent *within the current utterance*, as the new (or otherwise important) information that attracts attention.

Apart from word order, further candidates for morphosyntactic asymmetries are absolute position (initial or final position in a phrase or clause), the head-dependent relation, agreement, grammatical functions and the mode of morphosyntactic marking.

Semantic and pragmatic dimensions of prominence that these morphosyntactic asymmetries have been proposed to reflect (in some language) are topicality or givenness, focus, argument structure, relative scope, among others.

An example of a truly morphosyntactic prominence relation is the distinction between function words and content words. Auxiliary verbs, for example, are usually inflected like lexical verbs, but they lack semantic valence and express special grammaticalised semantic properties like tense, mood, aspect, if any. Auxiliary verbs usually cooccur with a lexical verb. Function words occur, in general, when for a particular grammatical category in some language we have an analytic rather than synthetic construction mode. Sometimes, both modes cooccur as in the case of English comparative adjectives:

(3) a. easy – easier, *more easy(ier)
   b. intelligent – *intelligenter, more intelligent(*er)

Such a complementary distribution of affix and word is rarely to find with content words, if at all. Even more so, in the typical course of grammaticalisation a function word is reduced to an affix, subject to further phonetic reduction until it is no longer visible and a new cycle starts with the selection of a content word as new function word. This cycle of grammaticalisation holds exclusively for the development of grammatical elements, not for content words.[3]

[3]Derivational affixes, like function words, derive from roots of content words that are frequently used in compounds. They also undergo phonetic reduction, but there is nothing comparable to the cycle of grammaticalisation in such cases, and likewise we usually do not have complementary distribution of a content word with a derivational affix.

This distinction is also reflected in prosody and in semantics. In languages that have word stress, there will never be a constellation where function words have obligatory word stress, but not content words. Every content word usually has a corresponding element within semantic representations, whereas this need not be so for function words and their particular morphosyntactic features. For instance, grammatical gender and agreement morphology do not have a semantic value. In (4), the active (4-a) and passive version (4-b) have the same semantic representation (4-c). The passive auxiliary and the passive morphology (be + participle) have no semantic correspondent.[4]

(4) a. Mary is kissing Paul
b. Paul is being kissed by Mary
c. $prog(kiss'(m, p))$

We now have arrived at a revised definition of morphosyntactic prominence. Furthermore, we can distinguish between truly morphosyntactic prominence and borrowed morphosyntactic prominence.

Morphosyntactic prominence (revision) a morphosyntactic unit a is morphosyntactically more prominent than a morphosyntactic unit b iff:

(i) a and b are constituents of the same larger morphosyntactic object S:
$[_S \ldots$ a $\ldots$ b $\ldots]$ or $[_S \ldots$ b $\ldots$ a $\ldots]$

(ii) a morphosyntactic asymmetry A holds between a and b:
aAb.

(iii) there is a prominence defining property p such that a, but not b (or sem(a), but not sem(b); or phon(a), but not phon(b)) has this property:
$\exists p[p \in PROM \wedge (p(a) \wedge \neg p(b) \vee p(sem(a)) \wedge \neg p(sem(b)) \vee p(phon(a)) \wedge \neg p(phon(b)))\ ]$
(PROM = set of prominence defining properties;
sem(x) = correspondent of the morphosyntactic unit x in the pragmaticosemantic representation;
phon(x) = correspondent of the morphosyntactic unit x in the phonological representation;

[4]The 'prog' operator in (4-c) is a shorthand for progressive aspect.

linguistic expression = a triple <SEM,SYN,PHON> of corresponding semanticopragmatic, morphosyntactic and phonological representations)

Truly morphosyntactic prominence In cases of truly morphosyntactic prominence, p is a morphosyntactic property and p and A may conflate.

Borrowed morphosyntactic prominence In cases of borrowed morphosyntactic prominence, p is a non-morphosyntactic property and p is iconically mapped onto A.

For the rest of this paper, I assume that all possible cases of morphosyntactic prominence can be analysed according to these definitions. In order to make this account fully explicit, two questions need to be clarified:

- Which morphosyntactic asymmetries belong to the range of A in the above definition?
- Which morphosyntactic, phonological or semanticopragmatic properties constitute the set of prominence defining properties, PROM?

There are three types of sources for a morphosyntactic asymmetry between two morphosyntactic units *a* and *b*:

1. morphosyntactic *marking*: *a* has a marker that *b* lacks.
2. syntactic *relations*: a certain asymmetric syntactic relation holds between *a* and *b*.
3. The syntax model that has been chosen implies some asymmetry between the representations of *a* and *b* (e.g., headhood, government, c-command, a.o.)

The first two sources are direct sources of asymmetries. Syntactic modeling decisions are less direct, but usually require *motivation* from one of the first two sources. A proposal for a morphosyntactic asymmetry that is derived from theoretical assumptions is therefore less forceful than proposals derived directly from observations.

To give an example, c-command is not the only way to integrate findings about word order into a theory of syntax, but every syntactic theory has to deal with word order. While word order is a plausible source of syntactic asymmetries in any framework, c-command can only be such a source in

theories that assume that relation. Still, once we have determined our notion of morphosyntactic prominence, we might have a *heuristics* at our disposal that helps us in deciding among competing theories.

With respect to PROM, the set of prominence defining properties, I will not be able to make a definitive proposal. The definition of prominence that I have given above might also serve as an operative criterion for deciding whether a particular phenomenon belongs to the class of prominence phenomena.

I suspect that the least controversial prominence properties are to be found in the analysis of linguistic form. For the two asymmetries in (5), I assume the underlined parts of the asymmetry as the prominent parts:

(5) a. stressed – unstressed
b. inflected – uninflected

Especially when stress and inflection are used in iconic mappings of semantic properties, those semantic properties are candidates for PROM.

The discussion up to this point has led me to a provisional understanding of prominence as *a certain family of descriptive generalisations about language*. These are on the one hand more abstract than mere observation, on the other hand not specific to any particular linguistic theory. Rather, they describe a set of higher order research questions that can and should be addressed by any theoretical approach to language.

In the remainder of this paper, I will do three things. Section 3 reviews optimality theoretic work on the alignment of scales and other asymmetries, i.e. examples of the interaction of morphosyntactic asymmetries on the one hand and prominence defining properties on the other hand. The choice for OT is not accidental, as this framework has paid particular attention to the potential of scales of markedness and prominence for linguistic explanations.

Section 4 discusses a number of candidates for morphosyntactic asymmetries in the sense of my definition of prominence, and in particular evaluates whether these could count as truly morphosyntactic prominence.

Section 5 finally evaluates whether the findings of section 4 are useful for deciding among alternatives in syntactic modeling.

3 Prominence, alignment, correspondence

The definition of prominence that I assume describes the alignment of two scales where "scale" is understood in a broad sense that includes binary scales which may consist only in presence vs. absence of some property, scales of intrinsic features of elements as well as an order between elements.

Optimality Theory is perhaps unique among more formal grammatical frameworks in that it has developed several tools to integrate scales and alignment of scales into formal grammatical theory. In this section, I will briefly discuss harmonic alignment, correspondence and bidirectional OT, all of which are plausible candidates for a treatment of prominence.

3.1 Harmonic Alignment

Harmonic alignment has been part of OT from the first steps on. Prince & Smolensky 1993/2004 proposed a mechanism for the construction of violable markedness constraints by aligning two distinct prominence scales. We start with two markedness scales, one of them must be binary (6-a):

(6) scale 1: X $\prec$ Y
scale 2: a $\prec$ b $\prec$ c

In the next step, we merge these two scales element-wise to the effect that a match of the two left or right ends of the scales turn out to be the ideal cases: cooccurrence of a and X is better than cooccurrence of b and X, etc. Accordingly, c optimally cooccurs with y. This leads to two scales of combinations of elements of the two simple scales in (6):

(7) scale 3: a/X $\prec$ b/X $\prec$ c/X
scale 4: c/Y $\prec$ b/Y $\prec$ a/Y

From these scales we can now directly read off two subhierarchies of violable markedness constraints:

(8) subhierarchy 1: *c/X $\gg$ *b/X $\gg$ *a/X
subhierarchy 2: *a/Y $\gg$ *b/Y $\gg$ *c/Y

These subhierarchies are not rerankable, i.e. they are the same in all languages. Grammars differ, however, in how the two subhierarchies are ranked relative to each other. For instance, if a language observes a/Y, i.e. a/X is ungrammatical, then by necessity, it must also observe b/Y and c/Y. The reason is that such an outcome requires the partial ranking *a/X $\gg$ *a/Y. Because the rankings within the subhierarchies are fixed, this partial ranking implies *b/X $\gg$ *b/Y and *c/X $\gg$ *c/Y. This way, it is possible to derive implicational universals familiar, for instance, from the work of Silverstein (1976), as has been shown by Aissen (2003).

There are no principal limits on applying this mechanism: any number of scales (with any number of members) may be aligned. One of the scales always has to have two members, and harmonic alignment can only align

two scales at a time. But this is a mere technical issue. A scale with three members (a $\prec$ b $\prec$ c) can be split into two scales with two members (a $\prec$ b,c and a,b $\prec$ c), both of which can be aligned with another scale such that in the end we have four constraint subhierarchies, etc.

Applications of this mechanism in morphosyntax often combine a *form scale* with a *"content" scale*. For illustration, consider the following typological generalisation about case taken from Blake (2001). He proposes a hierarchy of inflectional case as follows:

(9) Hierarchy of inflectional case:
nom $<$ acc/erg $<$ gen $<$ dat $<$ loc $<$ abl/inst $<$ others

This is how the scale is to be interpreted: "If a language has a case listed on the hierarchy, it will have at least one case [i.e., inflectional marker, RV] from each position to the left." (Blake 2001, 156)

The two involved scales are the following ones:

form scale adposition $>$ affix $>$ zero (marker prominence)

content scale = (9)

The form scale has to be split into two binary scales. We can do this in the following way:[5]

(10) a. zero marking $\succ$ marking (= affix, adposition)
b. NP (= zero, affix) $\succ$ PP (= adposition)

By harmonically aligning the case scale in (9) with the two scales in (10), we get four subhierarchies. Their relative ranking then derives the implicational universal that Blake describes.

Which is the "prominent edge" of the case scale? We have two competing ideas: (i) generality, givenness, high frequency ("nom" most prominent); or (ii) idiosyncrasy, novelty, low frequency ("others" most prominent). If we use prominence in form as indicator, then the right end of Blake's case scale is the prominent one, because adposition is the most prominent marker. But aren't both views legitimate dimensions of prominence? We could then say that high prominence of nominative is borrowed morphosyntactic prominence – because it has no marker prominence, but iconically maps topicality, whereas prominence of oblique case is truly morphosyntactic prominence, which can in addition also be seen as iconically mapping discourse novelty, idiosyncrasy etc.

[5]See Vogel 2002 for such a proposal on the typology of case systems.

Aissen (2003) used harmonic alignment to reconstruct Silverstein's (1976) typological generalisation on differential subject and object marking. Silverstein proposed the following scale:

(11) Silverstein (1976): Accessibility hierarchy
1st person < 2nd person < 3rd person pronoun < proper name/kin term < animate < inanimate

The Silverstein hierarchy describes the typology of partial/differential subject/object marking: the more to the right (left), the more likely a subject (object) is realised with a marker (in the languages).

As many have noted, this hierarchy is composed of several hierarchies. In her OT reconstruction of Silverstein's proposal, Aissen applies harmonic alignment on the following scales:

(12) a. subject < object
b. Pronoun > Name > Definite > Indefinite Specific > NonSpecific (definiteness scale)
c. human < animate < inanimate (animacy scale)

Aissen's (2003) analysis is the paradigm case of applying harmonic alignment in morphosyntax.

For the scales in (12-b,c), prominence in terms of specificity and animacy is clearly associated with their left edges. Silverstein's typological generalisation describes how this maps iconically to morphosyntax. Interestingly, the mapping is not directly onto (zero, affix or adposition) marking. The mapping is dependent on the grammatical function of an NP. Thus, it is the unmarked case for subjects to be animate and highly specific (pronominal), and for objects to be inanimate and non-specific. Cases that diverge from this pattern require marking, to a degree differing from language to language.

(12-a) describes an asymmetry in terms of grammatical functions. We furthermore have two iconic mappings to distinguish for each scale in (12-b,c): the more prominent in terms of these scales an object is, the more likely is its being marked (coincidence of morphosyntactic and semantic prominence), and the more prominent a subject is, the less likely is its being marked (borrowed morphosyntactic prominence).

There is a way in which we can generalise over these cases. Namely, it seems as if morphosyntactic marking goes hand in hand with *expectations* that are not met. Subjects are expected to be highly definite and animate, whereas objects are expected to be non-definite and inanimate. Thus, what is aligned in these iconic mappings is marking on the form side and un-

expectedness on the content side. Such an understanding of prominence, however, seems to coincide with that of markedness. This might not be surprising.

3.2 Correspondence

OT grammars model language as input-output mappings. In OT phonology, the underlying form usually is a phonemic representation, and the output is a phonetic form. In OT syntax, various options are possible. A standard model is one with semantics in the input and syntax in the output.

A crucial aspect of OT models is that linguistic facts are explained by the interaction of markedness and faithfulness constraints. Faithfulness constraints require identity of input and output forms. They have a conservative effect: underlying structure is kept as much as possible in output forms. In OT phonology, it is straightforward what this means: both input and output contain segments, i.e. elements of the same kind. With respect to OT syntax, the situation is different: the semantic representation in the input and the syntactic representation in the output do not share any elements. The way out of this dilemma lies in a more abstract conception of the input-output relation. It has been developed by McCarthy & Prince (1995) in their correspondence theory of faithfulness. The crucial move is that output candidates are annotated with respect to which of their elements correspond to which element of the input.

(13) a. Standard OT:
input: /sɛm/
output candidate: [sɛm]
etc.

b. Correspondence theoretic OT:
input: /$s_1\varepsilon_2m_3$/
output candidate 1: [$s_1\varepsilon_2m_3$]
output candidate 2: [$s_2\varepsilon_1m_3$]

Although both candidate 1 and 2 consist of the same sequence of segments ([sɛm]), only candidate 1 is faithful, because in candidate 2 the correspondence relations lead to violations of faithfulness.

Vogel (2003) showed how correspondence OT can be applied to semantics-syntax mapping. The idea of representational correspondence is also present in non-OT work e.g. by Jackendoff (1997). Correspondence in semantics-syntax mapping boils down to the requirement of structural isomorphisms

between syntactic and semantic structure. For instance, if sem_1 and sem_2 stand in a certain relation R_{sem}, then their corresponding syntactic units should stand in a particular syntactic relation. Quantifier scope as in (1) is an example in case. The semantics-syntax correspondence constraint can be formulated as in (14):

Q-Scope mapping If a quantifier sem_2 is contained in the scope of another quantifier sem_1, then syn_1 c-commands (precedes) syn_2.

Similar constraints can be (and have been) formulated for word order and other syntactic phenomena related to predicate-argument structure or information structural distinctions like focus and topicality.

3.3 Bidirectional Optimisation

In OT syntax, a semantic structure in the input is mapped onto a syntactic output structure. When we reverse the direction of input-output mapping (i.e., syntax ➔ semantics), we have OT semantics. Bidirectional optimisation takes the two perspectives together.[6]

More generally, a linguistic expression is understood as a form-meaning pair $<f_i,m_i>$ in bidirectional OT, such that f_i is the optimal form for the expression of m_i and m_i is the optimal interpretation of f_i. Bidirectional optimality goes beyond unidirectional optimality, as there is more than one competition involved in the definition of grammaticality. In order to capture this, Jäger (2000) defined the notion of *super-optimality* for pairs ⟨E, I⟩ of an expression and its interpretation as follows:[7]

(14) A pair ⟨E, I⟩ of a set of candidate expressions GEN is superoptimal iff:

i. There is no superoptimal ⟨E', I⟩ ∈ GEN such that ⟨E',I⟩ $\gg_E$ ⟨E, I⟩

ii. There is no superoptimal ⟨E, I'⟩ ∈ GEN such that ⟨E, I'⟩ $\gg_I$ ⟨E, I⟩

One effect of this definition is that it not only yields a pairing of the unmarked form with the unmarked interpretation, but also of the marked form with the marked interpretation. Let us discuss this schematically first. Consider a very simple competition between two forms and two interpretations,

[6] See Blutner 2000, Blutner/Zeevat 2003, Vogel 2003 for further discussion of bidirectional OT.

[7] I prefer the notion 'form' over 'expression', as the latter can be understood as involving meaning which is not intended here.

one of each being marked (f_m, m_m), the other unmarked (f_u, m_u). There are two markedness constraints, M_F and M_M, violated by the marked variants, but not by the unmarked ones. This yields the following input-output mappings:

(15) a. Form optimisation:
(i) m_u ➔ f_u
(ii) m_m ➔ f_u
b. Meaning optimisation:
(i) f_u ➔ m_u
(ii) f_m ➔ m_u

In form optimisation, both forms compete for the expression of the two given meanings. In both competitions, f_m loses against f_u. In meaning optimisation, both forms are mapped onto the unmarked interpretation m_u. We have four form-meaning pairs to consider, two of which are super-optimal according to (14):

(16) a. <f_u, m_u> : super-optimal, because f_u and m_u win all competitions.
b. <f_m, m_u> : loses against <f_u, m_u>
c. <f_u, m_m> : loses against <f_u, m_u>
d. <f_m, m_m> : super-optimal, because it only loses against <f_m, m_u> and <f_u, m_m>, neither of which by itself is super-optimal.

This system derives blocking phenomena and effects of Gricean implicatures, in particular, the maxims of manner and quantity: usage of the marked expression indicates that the unmarked interpretation is not intended. The logic of bidirectionality is similar to harmonic alignment, but it has the advantage that it is not dependent on scales and can therefore be applied more generally.[8]

Levinson (1991, 2000) showed how generalized conversational implicatures can be used to explain the grammaticalisation of the English reflexive pronoun 'him-/her-/itself'. In Old English, the earlier reflexiviser *se* had disappeared. A sentence like "John$_1$ shaved him$_{1/2}$" was in fact ambiguous, but with a preference for the non-reflexive reading. Disambiguation was possible by means of adding the intensifier *self*. Levinson showed that intensifiers and emphatic elements are widespread as the basis for the grammaticalisation of reflexives – in typologically unrelated languages.

[8] A problematic aspect is that "total losers" are given the chance of being grammatical, which is sort of counterintuitive in a competition-based model.

His analysis can be translated into the sketched bidirectional OT model quite easily. Our interpretive markedness constraint is some version of principle B of the binding theory (Chomsky 1981, 1986) requiring that coarguments of the same predicate may not be coreferent. The markedness constraint on form prefers the simple over the intensified pronoun.

Each of the mechanisms illustrated in this section derives the well-known tendency that the simple form signals default interpretation, whereas the special/unexpected/complex form signals non-default interpretation.

In this section, we focused on morphosyntactic marking as an instance of morphosyntactic prominence. Put more generally, prominence marking (by any kind of phonetic, prosodic, morphological or syntactic means) is used to guide the *attention* of the hearer to a particular linguistic unit that deserves attention, either because that unit or its interpretation is unexpected/unusual, or because it is supposed to raise attention (e.g., because it is focus).

Section 4 discusses a number of further sources of morphosyntactic asymmetry.

4 Morphosyntactic phenomenology

In this section, I will review a number morphosyntactic relations, in particular, grammatical functions, relative word order, absolute position, constituency, dependency and agreement. For each of these relations, I will examine, whether they provide asymmetries that can be interpreted as prominence relations.

4.1 Grammatical Functions

Most accounts of grammatical functions assume some *hierarchy* of grammatical functions, for instance as in (17).

(17) subject > direct object > indirect object > obliques

Are grammatical functions a reasonable source of prominence, i.e., does the following hold?

GF-relative prominence If X's GF is higher/lower than Y's GF, then X is more prominent than Y.

With respect to the subject function, there are certain indicators of intrinsic prominence. The subject is frequently discourse-old/given and encodes perspective/narrative center. Pronouns figure with high frequency in

that grammatical function. This would be a case of borrowed morphosyntactic prominence. The GF hierarchy is also often correlated with word order, another source of asymmetry.

The passive diathesis can be understood as a mechanism to align syntactic structure with information structure, indicating that indeed some kind of information structural prominence is connected to subjects.

In contrast, direct objects can also assume borrowed morphosyntactic prominence, as they are likely to be discourse-new and part of sentential focus.

From an intrinsic morphosyntactic perspective, obliques have the strongest morphosyntactic marking, and subjects the weakest. Thus, if the GF hierarchy is a source of truly morphosyntactic prominence, then the right edge in (17) is the prominent edge.

4.2 Word order

Word order may encode prominence by relative order or by absolute position. Let us first explore relative order:

Prominence by relative order If X is more prominent than Y, then X precedes/follows Y

A rich tradition of research on German syntax has revealed that at least the following factors affect constituent order:
GF hierarchy: subject $\prec$ object;
Form: pronoun $\prec$ full NP;
Topicality: given $\prec$ new;
Focus: non-focus $\prec$ focus;
Definiteness: definite $\prec$ indefinite;
Animacy: animate $\prec$ inanimate ;
Person: 1st/2nd person $\prec$ 3rd person

With the exception of focus, those factors that are plausible candidates for prominence relations (GF hierarchy, topicality, animacy, person) correlate prominence with precedence rather than consequence. If relative word order is supposed to be a case of truly morphosyntactic prominence, then precedence is therefore the more likely candidate.

Word order may also be related to prominence in terms of absolute position:

Prominence by absolute position If X is prominent, then X occurs in a prominent position (e.g. the initial/final position of the clause, or another designated position)

There are several candidates for such positions. One of them is the initial position of clauses. Landing sites of syntactic movement usually are peripheral positions (typically to the left), as in (18).

(18) Question formation
   a. **What** did John buy _?
   b. **What** do you think [that John bought _] ?

The final position is targeted by focus placement in Italian:

(19) Focus placement (Italian)

   Ha riso ***Gianni***
   has laughed G.

   (context: Who has laughed?, Samek-Lodovici 2005, 688)

In this example, the subject exceptionally occurs at the right edge (the default location of main stress). Languages may also designate particular positions for prominence relations. In Turkish, for instance, the focus position is left adjacent to the verb. This is also a typical "landing site" of wh-movement, which is optimal in Turkish.

(20) a. *bu kitab-ı* ***kim*** *oku-du?*
   this book-ACC who read-Past
   b. ***kim*** *bu kitab-ı oku-du?*
   who this book-ACC read-Past
   (Kornfilt 1997)

As in the Italian case, the subject exceptionally occurs behind the object in (20-a). It may also stay in situ (20-b).

The initial and final position of phrases and sentences are possible loci for prominent morphosyntactic units which are at the disposal of all languages. Other positions, as in the Turkish case, have to be coded for prominence explicitly in the grammar of the respective language.

4.3 Constituency

Is there a reasonable understanding of *prominence* in terms of constituency? There are two logical options:

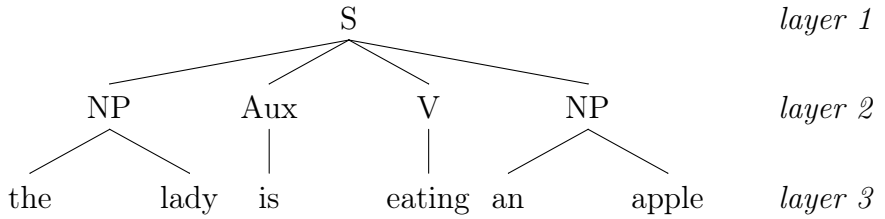
Prominence by Constituency

option 1 If X is a part of Y, then X is more/less prominent than Y.

option 2 If X and Y are (immediate) co-constituents of Z, then X is more prominent than Y, given certain conditions ...

In option 2, the symmetric relation of sisterhood is described. But given that this relation is symmetric, a constituent can only be more prominent than a sister node by virtue of some other prominence definig property. Hence, this second option can be counted out. The first option targets the vertical dimension of constituent structure. Consider a simple syntactic analysis as in (21).

(21) The lady is eating an apple.



Layer 2 in the constituent tree in (21) is the interesting layer. From a conceptual point of view, layer 1 cannot stand in a vertical prominence relation to one of its constituents, because the S node defines the domain *within which* morphosyntactic prominence relations are coded. Layer 3 is the layer of the words. If that layer was crucial there was not much need for syntactic rules. Layer 2 is the layer of *major constituents*. This is the layer, where we observe word order variation among its constituents, where case, grammatical functions and semantic roles are assigned and where crucial aspects of syntax-semantics mapping are applied.

These are also the units that are best reflected in prosodic phrasing. To give an example, German noun phrases have their phrasal stress on their rightmost content word. phrasal stress here clearly serves to *demarcate* the right boundary of the noun phrase:

(22) German NP stress: right edge (Wiese 2000)

a. *Goethes* *Werke*
Goethe's works

b. *Die Werke* *Goethes*
the works of Goethe

I conclude that constituency is a plausible basis of truly morphosyntactic prominence, perhaps in the form of the following definition:

Truly morphosyntactic prominence by constituency If X is a major

constituent and Y a constituent of X, then X is more prominent than Y.

4.4 Dependency

At first sight, dependency relations are a natural candidate for prominence, because heads of constituents select their dependents.

Prominence by dependency If Y is a dependent of X, then X is more prominent than Y.

However, it is important to keep in mind that notions like "governor", "dependency" or "valence" are used merely metaphorically in syntax. From a semantic perspective, it makes not much sense to interpret the predicate-argument relation as a prominence relation. Predications are only interpretable as wholes, a predicate needs its arguments. The same problem occurs in syntax. A transitive verb like "kiss" can be interpreted as the governor of its clause. But the syntax of a transitive verb is shared by many other verbs. It is hence also reasonable to treat this transitive pattern as an autonomous component (a transitive verb construction, citing construction grammar terminology) that serves as the "governor" of the structure. Thus, a transitive verb phrase may be construed in one of two ways:

(23) a. transitive VP: $[_{\text{VP}}$ _ V _ $] \oplus$ subj $\oplus$ obj
b. transitive VP: $[_{\text{VP}}$ _ _ _ $]$ subj $\oplus$ verb $\oplus$ obj

(23-a) represents the conventional treatment with the verb providing the argument slots. (23-b) is a constructionist analysis with the verb as slot filler in a transitive verb phrase. The choice between (23-a) and (23-b) is a non-empirical one, and so is the characterization of verbs as heads or governors.

4.5 Agreement

The Agreement relation possesses an intrinsic asymmetry than can plausibly be exploited to define truly morphosyntactic prominence. The source of agreement features should be more prominent than the exponent of agreement inflection.

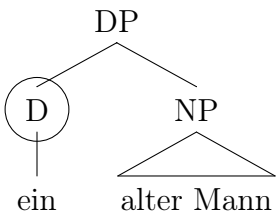
Prominence by agreement relations If Y agrees with X, then X is more prominent than Y.

A paradigm case is agreement within noun phrases, as for instance in German.

(24) *ein alter* *Mann*
an old-*masc.sg.nom* man
"an old man"

The agreement inflection (in particular, number and gender) of the adjective depends on the noun's intrinsic features. Thus the head noun of an NP is more prominent than an attributive adjective. The same holds for the determiner. Interpreting agreement as prominence relation thus leads to a syntactic analysis that conflicts with the popular DP analysis of noun phrases that assigns head status (and therefore higher prominence) to the determiner:

(25)



4.6 Special constructions

Apart from the general phenomena that we discussed up to here, languages may develop constructions that are particularly devoted to the expression of prominence. I will only briefly give the example of the English cleft construction here which provides means to realise focus in initial position:

(26) It was *Mary* [who bought the book]

The range of options in this category is enormous. The Turkish example of a language particular focus position within the clause is similar in that it takes knowledge of the language to discover prominence. Devices like stress, initial or final position are perceptually salient and therefore detectable as loci of prominence even with no or little knowledge of the language.

Emphatic markers and intensifiers also belong to this category. They can be understood as explicit lexicalisations of prominence. They also need to be learned by the speaker in order to recognise their function as indicators of prominence.

5 Evaluation

We discovered a number of candidates for morphosyntactic prominence in the preceding section. The grammatical functions subject and object are cases of borrowed prominence. The existence of the passive diathesis even motivates subjecthood as truly morphosyntactic prominence. Truly morphosyntactic prominence is further instantiated by obliques, due to their more complex marking.

The precedence relation might be a candidate for truly morphosyntactic prominence, consequence most likely not. The initial and final positions of phrases and clauses are prominent syntactic positions that are available in all languages, whereas languages might also have additional designated positions, as exemplified with the Turkish focus position.

We further found that using constituency as prominence defining property helps to understand the importance of major constituents in syntax. Agreement likewise is a plausible candidate for morphosyntactic prominence due to its intrinsic asymmetry between source and exponent of agreement morphology.

In addition to these findings, recall that prosodic evidence points to an interpretation of the function word-content word asymmetry in terms of prominence.

Syntactic theory, if based on such prominence relations, focuses on major constituents, lexical categories and content words. This goes somewhat against current fashion in syntax with its high attention to so-called functional categories. The tradition of generative syntax has identified two crucial syntactic domains: the sentence/verb phrase, and the noun phrase. Headedness was implicit, but not central for the formalism in earlier days. Consider the traditional phrase structure rules in (27):

(27) S and NP structure in Traditional generative syntax:

a. S ➔ NP VP (sentence)
b. NP ➔ (Det/Poss) (Adj*) N (PP*) (noun phrase)

X-bar theory made heads obligatory. Larger domains are now phrasal *projections* of heads.

(28) S and NP structure in X-bar theory:

a. [CP [IP [VP]]] (sentence)
b. [DP [NP]] (noun phrase)

Research in the minimalist program lead to a proliferation of functional projections, trivialising the head concept.

(29) S and NP structure in functional category minimalism:

a. [. . . [F3P [F2P [F1P [VP]]]]] (sentence)
b. [. . . [F3P [F2P [F1P [NP]]]]] (noun phrase)

Alternative concepts have been developed to provide the means to target the syntactic core domains, for instance by Grimshaw (1991).

(30) Extendend projections (Grimshaw 1991):
Extended projection of V: verb phrase, verbal functional projections, sentence etc.
Extended projection of N: noun phrase, determiner phrase, prepositional phrase etc.

Chomsky's (2001) phase theory is in this respect a very similar approach. These accounts reestablish *sentence/verb phrase* and *noun phrase*, the major constituents, as central syntactic domains and the *lexical verb* and *lexical noun* as their core. This is very much in line with the insights on truly morphosyntactic prominence that I reached in this paper.

6 Conclusion

Establishing *morphosyntactic prominence* as a helpful analytical category requires a number of critical steps. First, it is important to distinguish between what I have called truly and borrowed morphosyntactic prominence. A careful analysis of morphosyntactic asymmetries is crucial to reach this goal. Truly morphosyntactic prominence (TMP) is derived from morhosyntactic form. I argued that plausible instances of TMP are marking, precedence, prominent position, subjecthood, major constituenthood, source of agreement relation and content word status. In addition to this, syntax provides rich means to encode non-syntactic, especially semanticopragmatic prominence relations.

Often, the same means are simultaneously used for different purposes. For instance, stress in German is a means to encode metrical and prosodic structure in phonology, for signaling the semanticopragmatic property of focus and to signal the right edge of a major syntactic constituent. Modeling the interplay of such a multiplicity of factors and representational levels demands a well-equipped framework. I showed in section 3 that Optimality Theory provides many tools to fulfil such a task.

Developing a theory of syntax that is based on such an explication of prominence would be worth pursuing if it differs substantially from already existing frameworks and offers ways to formulate generalisations that can-

not straightforwardly be covered by existing frameworks. Especially the latter point still remains to be shown. One important impact of reflecting prominence in syntax that I see thus far lies in a certainly healthy shift of focus towards major syntactic domains and their lexical core in the theory of phrase structure.

Dealing with borrowed morphosyntactic prominence raises issues that have been dealt with under a number of different notions such as markedness, iconicity, correspondence and blocking, all of which have already found substantial treatments in optimality theory and other already existing frameworks.

References

Aissen, Judith (2003). Differential object marking: iconicity vs. economy. NLLT 21: 435-483.

Blake, Barry J. (2001), Case. 2nd edition. Cambridge, UK: CUP.

Levinson, Stephen C. (1991). Pragmatic Reduction of the Binding Principles Revisited. Journal of Linguistics 27:107–161.

Levinson, Stephen C. (2000). Presumptive Meanings. Cambridge, Mass.: The MIT Press.

Blutner, Reinhard (2000). Some aspects of optimality in natural language interpretation. Journal of Semantics 17: 189–216.

Blutner, Reinhard & Henk Zeevat, eds., (2003). Optimality theory and pragmatics. Houndmills, Basingstoke: Palgrave.

Chomsky, Noam (1981), Lectures on Government and Binding: the Pisa Lextures. Dordrecht: Foris.

Chomsky, Noam (1986), Knowledge of Language: It's Nature, Origin, and Use. New York: Praeger.

Chomsky, Noam(2001), Derivation by Phase. In M. Kenstowicz, ed., Ken Hale: A Life in Language, Cambridge: MIT Press, 1-52.

Grimshaw, Jane (1991), Extended projections, MS., Brandeis Univ.

Jackendoff, Ray (1997), The Architecture of the Language Faculty. Cambridge, Mass.: The MIT Press.

Kornfilt, Jaclyn (1997), Turkish, London: Routledge.

Samek-Lodovici, Vieri (2005), Prosody-syntax interaction in the expression of focus, NLLT 23, 687-755.

McCarthy, John and Alan Prince (1995), Faithfulness and Reduplicative Identity. In Beck- man, Jill, Laura Walsh-Dickie, and Suzanne Urbanczyk, eds., Papers in Optimality Theory, Occasional Papers in Linguistics 18, 249–384. Amherst, Massachussetts: University of Massachussetts at Amherst.

Selkirk, Elisabeth (1996), The Prosodic Structure of Function Words, in: James Morgan and Katherine Demuth, eds., Signal to Syntax: Bootstrapping from Speech to Grammar in Early Acquisition, Mahwah, NJ: Lawrence Erlbaum, 187-213.

Silverstein, Michael (1976), Hierarchy of Features and Ergativity, in R. M. W. Dixon (ed.), Grammatical Categories in Australian Languages, Australian Institute of Aboriginal Studies, Canberra, 112–171.

Vogel, Ralf (2002), Surface Matters. Case Conflict In Free Relative Constructions And Case Theory. In E. Brandner & H. Zinsmeister (Eds.), New Perspectives On Case Theory, 269–299. Stanford: CSLI Publications. Vogel, Ralf (2003), Remarks on the Architecture of OT Syntax Grammars, in: Blutner, Zeevat, eds., 211-227.

Vogel, Ralf (2006), Weak function word shift. Linguistics 44, 1059-1093.

Vogel, Ralf et. al. (to appear), Function words in rhythmic optimisation.

Wiese, Richard (2000), The phonology of German, Cambridge: CUP.

Prof. Dr. Ralf Vogel
University of Bielefeld
Faculty of linguistics and literature studies
http://www.uni-bielefeld.de/lili/personen/rvogel/
mailto: ralf.vogel@uni-bielefeld.de