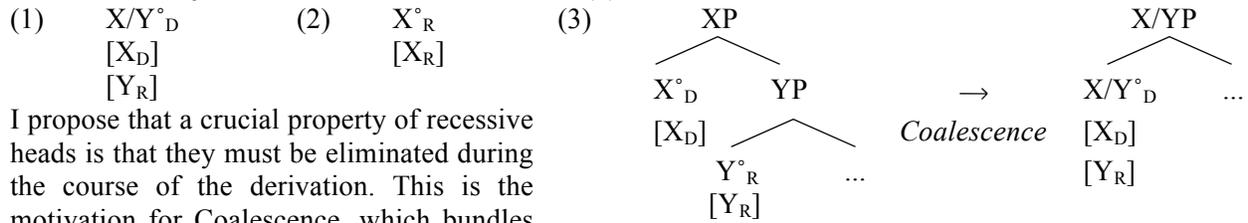


## Unification of Feature Scattering and M-Merger as Coalescence

**Introduction** This paper reconsiders two "bundling" mechanisms that have been proposed to affect syntactic structures, Feature Scattering and Morphological Merger, and proposes a unified account for them within a Minimalist grammar. The Feature Scattering Hypothesis posits that certain category features  $X$  and  $Y$  can enter the syntactic derivation either as separate heads  $X^\circ$ ,  $Y^\circ$  or as a single bundled head  $X/Y^\circ$  (Iatridou 1990; Giorgi and Pianesi 1996; Pylkkänen 2002). Morphological Merger has been proposed as a postsyntactic mechanism that converts an input of two structurally adjacent heads into one complex head (Halle and Marantz 1993; Matushansky 2006). While the two mechanisms have been situated in the presyntactic lexicon and a postsyntactic module, respectively, I argue that both can be unified as a single operation that applies during the syntactic derivation, Coalescence. I propose that Coalescence is properly motivated and constrained by a requirement to eliminate heads that are deficient for PF interpretation prior to cyclic transfer (Chomsky 2000 et seq.). The approach is primarily illustrated with examples of cross-linguistic variation in the realization of the clausal left periphery (Rizzi 1997).

**Coalescence, Dominance, and Recession** I propose that all "bundling" is a syntactic operation that takes place to eliminate heads that are in some sense deficient. We define distinctions between *dominant* and *recessive category features*, and *dominant* and *recessive heads*. Category features are lexically specified as being dominant or recessive (subscript  $_D$  or  $_R$ ). Whether a head is dominant or recessive depends on its featural composition. Heads that contain at least one dominant category feature are dominant (1). Those that contain only recessive features are recessive (2).



I propose that a crucial property of recessive heads is that they must be eliminated during the course of the derivation. This is the motivation for Coalescence, which bundles

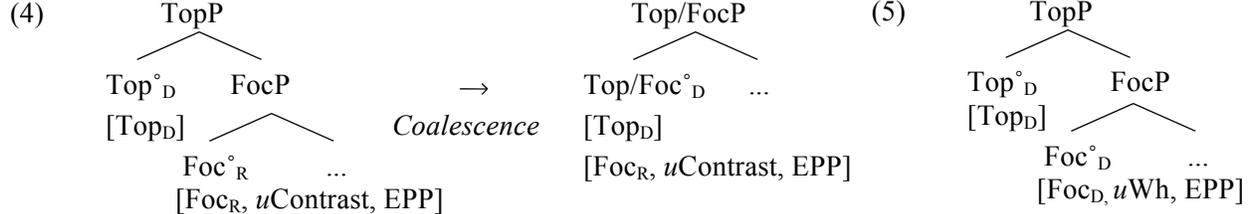
adjacent heads into a single head that inherits all of their features. Crucially, Coalescence is restricted to apply in the configuration (3), where a dominant head immediately c-commands a recessive one. There are two important consequences of this restriction: recessive heads can not trigger Coalescence with structurally lower heads, and pairs of dominant heads can not be bundled.

Variation in the number of instantiated heads thus depends entirely on the distribution of recessive features in a given language, illustrated with variation in the 'strictness' of second-position (P2) effects. Strict P2 occurs when all but the topmost head of the left periphery are recessive, forcing Coalescence to bundle them into a single projection. As the number of dominant category features increases, P2 requirements become increasingly loose, yielding patterns like V3 in Old English [ $XP_{top/foc} XP_{subj} V$ ] (Trips 2002) and Kashmiri [ $XP_{top} XP_{wh} V \dots$ ] (Bhatt 1999; Manetta 2011). I show that while such patterns are challenging for "bottleneck effect" approaches to V2 (Haegeman 1996; Roberts 2004), they are predicted in a Coalescence-based theory. The proposal that Coalescence is a syntactic operation allows us to maintain that heads in all languages enter the derivation with a single category feature and that the universal order of feature checking is established uniquely by the distribution of c-selection features (Adger 2003), not as a meta-condition on bundling in the lexicon (required by Feature Scattering).

**Case studies** Further empirical evidence for the Coalescence approach to bundling is found in languages that apparently instantiate both dominant and recessive variants of the same category feature.

*Kashmiri V2/3* Kashmiri has a robust V2 requirement in main clauses (Bhatt 1999; Manetta 2011). Non-subjects in first position are obligatorily focused [ $XP_{foc} V \dots$ ], and can not be topicalized. Kashmiri also permits an exceptional type of V3; if and only if the verb is preceded by a *wh*-word, the *wh*-word can be preceded by a topic [ $XP_{top} XP_{wh} V \dots$ ]. This distribution of topics is difficult to explain in a strictly cartographic approach, as it requires stipulation that movement to TopicP is possible only if FocusP is filled with a *wh*-word. In the present approach, the pattern is accounted for by proposing that the Focus $^\circ$  head has both dominant and recessive variants. Non- $[uwh]$  Focus $^\circ$  is recessive, forcing Coalescence to

apply, leaving a single head that has at most one specifier (4). Since [*uwh*] Focus° is dominant, Coalescence does not apply, leaving Spec,TopP available (5).



*English negation* English has a 'full' negative morpheme (orthographic *not*) and an affixal form (*n't*). While the two are often interchangeable (6), the affixal form is obligatory when negation raises with an auxiliary verb in negative inversion (7a). On the hand, only the full form is possible if the negative remains in a post-subject position (7b). Crucially, obligatory use of the affixal form in (7a) but not (6) is not obviously predicted under an account where reduction is a postsyntactic operation like M-Merger.

(6) Michael did not / didn't make a mistake.

- (7) a. \*Did not / didn't Michael make a mistake?  
 b. Did Michael not / \*n't make a mistake?

This distribution is predicted in the present account if the full form enters the derivation with a dominant category feature [*Neg<sub>D</sub>*], while the affixal form is recessive [*Neg<sub>R</sub>*]. The recessive affixal head must undergo Coalescence with an Aux° head once it is Merged; when the auxiliary is subsequently attracted to an interrogative complementizer position, the affixal negative raises as part of the bundled head. Coalescence does not apply to the dominant full form, preventing it from raising in inversion contexts.

**Recession as a PF property** I propose that recessive features are those that are deficient for interpretation at Phonetic Form, and that Coalescence operates to eliminate such elements before syntactic structure is transferred for interpretation at the interfaces. It follows that recessive heads must be eliminated from the derivation before phases are spelled out, correctly predicting that bundling is impossible across phase boundaries (e.g. no bundling between V° and complement C° or D°).

**Conclusion** This paper argues that the bundling operations known as Feature Scattering and M-Merger should be reanalyzed as a single operation Coalescence, part of the syntax proper. This allows for a simpler architecture of grammar that locates the primary sources of word order variation in the syntactic derivation, rather than in the lexicon or a postsyntactic module. Furthermore, it suggests that conditions on PF interpretability play an active part in syntactic derivations.

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