



Truckenbrodt (1995, 1999), in an OT-adaptation of the end-based approach, adds the constraint WRAP-XP:

(3) WRAP-XP: Each XP is contained in a phonological phrase

Selkirk (2009), (2011): Match Theory. Constraints that seek an exact mapping between syntactic constituents and prosodic constituents (e.g. clauses with intonational phrases, and phrases with phonological phrases). (4) = Selkirk (2011): (20).

(4) a. Match ( $\alpha, \pi$ ) [=S-P faithfulness]

The left and right edges of a constituent of type  $\alpha$  in the input syntactic representation must correspond to the left and right edges of a constituent of type  $\pi$  in the output phonological representation.

b. Match ( $\pi, \alpha$ ) [=P-S faithfulness]

The left and right edges of a constituent of type  $\pi$  in the output phonological representation must correspond to the left and right edges of a constituent of type  $\alpha$  in the input syntactic representation.

Some other approaches include specific syntactic relations.

Hale & Selkirk (1987): combination of end parameter settings and (absence of) lexical government, to account for Tohono O’odham (Papago) tonal phrasing.

(5) *Papago Phrasing Parameter (revised)* Hale & Selkirk (1987: (29))

$]_{X_{\max}}, X^{\max}$  not lexically governed

(6)  $[_{IP} NP_1 [_I I [_{VP} NP_2 V]]]$  *syntactic structure*  
 ( ) ( ) *prosodic domains*

Nespor & Vogel (1986: 168 (5)) for phonological phrase formation, branchingness of syntactic constituents plus lexical/functional distinction.

(7) *Phonological Phrase Formation*

I.  $\Phi$  domain

The domain of  $\Phi$  consists of a  $C$  [= clitic group] which contains a **lexical** head ( $X$ ) [N, V, A] and all  $C$ 's on its nonrecursive side up to the  $C$  that contains another head outside of the maximal projection of  $X$ .

II.  $\Phi$  construction

Join into an n-ary branching  $\Phi$  all  $C$ 's included in a string delimited by the definition of the domain of  $\Phi$ .



word) postsyntactically (at morphological structure, as in Distributed Morphology) and that constitutes the domain for vowel assimilation and other processes. Feature chains: {T,  $v/V$ }, {D, N}, {C, T}, {T, D}, { $v$ , D}, ({P, D}).

(11) Conditions on MS-word formation [taken from Elordieta 2008: (143)]

Two overtly realized heads will form an MS-word if:

- a. the heads form a morphosyntactic feature chain, and
- b. the heads are spelled out linearly adjacent, either as a result of incorporation, or by being spelled out in linearly adjacent heads (i.e., in a spec-head or in a head-complement configuration).

## 2.2 Phase Theory

Chomsky (2000, 2001), within the Minimalist Program: certain XPs are phases, domains of computation which also trigger transfer to the interfaces, the phonological component (Spell-Out) and the semantic component. The system is inherently cyclic.

For Chomsky there are two phases: CP and  $vP$ .<sup>2</sup>

The Phase Impenetrability Condition (PIC) renders material inaccessible:

Given the following configuration

(12) [<sub>ZP</sub> Z... [<sub>HP</sub>  $\alpha$  [H **YP**]]] (= Chomsky 2001: (8))

the PIC states

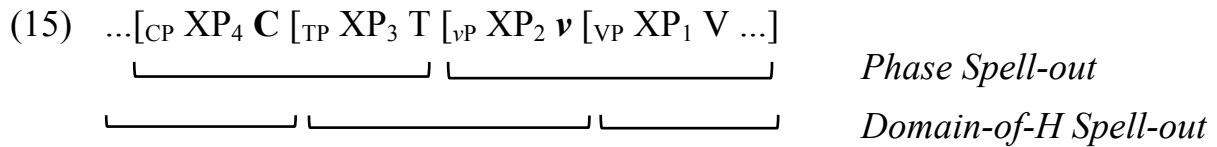
(13) The domain [=complement] of H is not accessible to operations at ZP; only H and its edge [= Spec...] are accessible to such operations. (= Chomsky 2001, (11))

What is subject to Spell-Out?

- (14) a. the phase itself (for Chomsky CP and  $vP$ )  
b. the domain of the phase head, subject to the PIC (for Chomsky TP and VP).

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<sup>2</sup> Chomsky makes a distinction between  $v^*$  (for transitive  $v$  or experiencer) and  $v$  (for passives and unaccusatives); only  $v^*$  triggers Spell-Out. I will obviate this distinction here unless needed.



Chomsky (2001) is not clear about the two options in (14).

Targeting the phase, (14a):

“The choice of phases has independent support: these are reconstruction sites, and they have a degree of phonetic independence (as already noted for CP vs. TP). The same is true of vP constructions generally [...]. If these too are phases, then PF and LF integrity correlate more generally.” (Chomsky 2001: 12)

Targeting the domain of H, (14b), but also the phase, (14a):

“In effect, H and its edge  $\alpha$  belong to ZP for the purposes of Spell-Out, under the PIC. YP is spelled out at the level HP. H and  $\alpha$  are spelled out if they remain in situ.” (Chomsky 2001:13)

Targeting the domain of H, (14b):

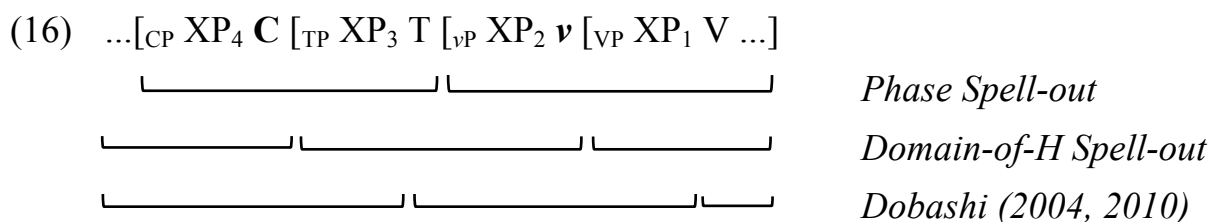
“an element to be extracted can be raised to the edge, and the operations of the phonological component can apply to the domain at once, not waiting for the next phase.” (Chomsky 2001: 13).

Nowadays Chomsky thinks that Spell-out should be eliminated; only the PIC should be kept (Chomsky 2016).

### 2.3 Approaches based on phases and prosodic domains

Dobashi (2004, 2010): proposes a two-step Spell-Out process, based on considerations regarding linearization (the *Assembly problem*). Spell-Out targets the domain of H: once linearization has taken place, the domain is sent to the phonology except for the left-most element; this element joins the next domain of Spell-Out in the phonology.

In the phonology, once phonological phrases have been created, rephrasing motivated by minimality considerations can take place.



Kratzer & Selkirk (2007) (K&S), with Spell-Out targeting the domain of H, propose the Highest Phrase Condition, to account for phrasal stress in German all new sentences.

(17) The Highest Phrase Condition on prosodic Spell-Out (K&S: (20))

The highest phrase within the Spell-Out domain of a phase corresponds to a prosodic major phrase in phonological representation.

- (18) a. [... [ [object verb]<sub>VP</sub> v ] ]<sub>VP</sub>  
b. [... [object [PP verb]]<sub>VP</sub> v ]<sub>VP</sub>  
c. [... [PP verb]<sub>VP</sub> v ]<sub>VP</sub>

Pronouns are skipped (do not count as phrases).

Cheng & Downing (2016), on several Bantu languages: they combine an end-based OT approach with reference to phases in the following constraints ((19) = Ch&D 1916: (33)):

- (19) a. ALIGNR[PHASE, INTPh] (ALIGNR-PHASE)  
Align the right edge of every phase (vP/CP) with the right edge of an Intonation Phrase (IntPh).  
b. ALIGNR[INTPh, PHASE] (ALIGNR-INTPh)  
Align the right edge of every Intonation Phrase (IntPh) with the right edge of a phase (vP/CP).

These constraints apply noncyclically once the syntactic derivation is finished.

### 3 No prosodic domains whatsoever

#### 3.1 D'Alessandro & Scheer (2015): Modular PIC

##### 3.1.1 The theory

D&S argue for a single chunking device for syntax and phonology; the same mechanism, phase-related, determines syntactic and phonological domains.

There are no prosodic domains.

But, with no other modification, multiple Spell-Out predicts many wrong domains for phonological processes. So, the theory must be relaxed.

Phases: any head is potentially a phase head (H), not just *v* or C (or D or P).  
Phase skeleton: the sequence of phase heads a given language has.







Penza ca ve /ca/ (D&S: (28))  
 think that come(s)  
 ‘I think that he/she comes/they come.’

### 3.1.2 Some concerns regarding Modular PIC

• Concerns posed by the particular analysis of Abbruzzese RF:

- The lack of RF can be attributed to two different causes: (a) the relevant head being specified as [+PIC<sub>pho</sub>, RF] (syntax); (b) absence of a lexical specification in the relevant head (lexicon). And, since any head can be specified as being [+PIC<sub>pho</sub>, RF], how can one tell? What would rule out an analysis of RF as an Across-The-Board (ATB) phenomenon but restricted to a small set of lexical items? (This is needed anyway.)

Evidence coming from a phenomenon without lexical specifications of this type would have provided stronger arguments in favor of Modular PIC.

- Only one minimal pair is given in D&S (repeated from above):

(25) a. so vistə *transitive active v* (no RF)  
 am seen  
 ‘I have seen’

b. so vvistə *passive v* (with RF)  
 am seen  
 ‘I am seen’

Following the conclusions in Biberauer & D’Alessandro (2006) (B&D), D&S assume that the auxiliary in the two sentences is the same lexical item. Under this view Abruzzese is an instance of auxiliary selection based on person (1st and 2nd vs. 3rd), although auxiliary selection based on person is only found in the present perfect indicative, not in other perfect tenses, and it shows a lot of variation across dialects.

(26) *A single auxiliary*

	ESSERE	AVERE
1SG.	so-x	—
2SG.	si-x	—
3SG.	jè-x	a
1PL.	semə	—
2PL.	setə	—
3PL.	jè-x	a

An alternative option, also considered by B&D, is that there are two auxiliaries, not one. They reject it because the two paradigms would be largely homophonous.

(27) *Alternative analysis with two auxiliaries*

	“BE” (auxiliary of passives, copular)	“HAVE” (compound tenses)
1SG.	so-x	so
2SG.	si-x	si
3SG.	jè-x	a
1PL.	semə	semə
2PL.	setə	setə
3PL.	jè-x	a

A third alternative, suggested by van Oostendorp (2015), is that there is a single auxiliary, without an -x slot, and that this x-slot (a mora) is an exponent related to the passive (maybe an exponent “of the abstract ‘absorbed’ accusative case”).

- Given the great amount of variation with respect to RF in Italo-Romance dialects it would be convenient to find other minimal pairs that could support Modular PIC (for instance, in Tollo, according to Hastings (2001), there are 37 triggers belonging to different classes: auxiliary forms, complementizers, imperatives, adverbs, prepositions, articles, demonstratives, numerals, negation, quantifiers).
- All the evidence for Modular PIC comes from these data. The other case they discuss, from Bantu languages, has received alternative analyses that resort to prosodic domains (see Cheng & Downing 2016, a.o.); their only objection to these accounts is precisely the use of prosodic domains.
- General concerns related to the lack of restrictivity:
  - Given that any head can be [+PIC<sub>pho</sub>] or [-PIC<sub>pho</sub>], for any given phonological process, and that even specific features on a given head can trigger different settings, Modular PIC predicts domains of virtually any size, and many patterns that don’t seem to be attested.





(33) *Distribution: presence (+), absence (-), variability (±) (D&S (13))*

	Saracena	Cerchiara	Stigliano
a. D-N/A	+	+	+
A-N	+	+	-
N-A	±	+	-
Q-N/A	±	+	-
b. cl-V	+	+	+
Aux-V	+	+	-
Copula-A	±	+	-
Mod/Caus-V	±	+	-
Neg-V	-	+	-
V-DP	-	±	-
c. DP-V	-	-	-

Like D&S, they reject the existence of prosodic domains, but they also reject a Modular PIC analysis: “We note that  $\pm$ phase or  $\pm$ PIC are not lexical parameters, since they involve not bona fide properties of lexical items, but rather encode derivational instructions. In general, while the terminology of Chomsky (2001, 2007) is maintained, it is partially voided of its actual content.” (M&S: 231).

They resort to statements like the following, relevant for D-N and cl-V:

(34) The Trigger is an internal argument of the Target or vice versa  
(The Trigger probes for the Target or vice versa)

But it's hard to see what status this type of statement should have; it looks just like a description of the situation.

They resort to Spell-Out and the PIC (standard version) to account for the lack of propagation between DP and IP. The question is then how to account for languages or processes for which there is no phonological edge/limit between DP and IP.

### Final remarks

Much research on the phonology-syntax interface has resorted to mechanisms that map syntactic structure to prosodic structure. Some other approaches have made use of syntactic relations, from c-command to probe-goal relations. With Phase Theory and the mechanisms of Spell-Out and the PIC it has been even more tempting to try to get rid of prosodic constituency, but without much success so far.

Prosodic domains are necessary, because phonology has its own conditionings, like the distinction between accented and unaccented words, or constraints related to length (not discussed here).

So, prosodic domains are necessary (but maybe not sufficient).

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