

Is there focus-marking in the syntax?

Kenyon Branan, Michael Yoshitaka Erlewine¹
National University of Singapore

1 The question(s)

- The sentences in (1) are string-identical and convey the same information, but are acceptable in different contexts:
 - (1) a. Alex gave BRIE a flower.
b. Alex gave Brie a FLOWER.
- The parallel contrast in (2), with *only*, leads to a truth-conditional difference:
 - (2) a. Alex *only* gave BRIE a flower.
b. Alex *only* gave Brie a FLOWER.
- The position of the pitch accent seems to co-vary with a difference in interpretation — in common terms, they differ in the position of *focus*.

The position of focus affects multiple modules of grammar:

- phonology: affecting the prosodic representation;
- semantics: specifying the position of variation across quantificational alternatives;
- (morphosyntax: triggering morphosyntactic reflexes of focus)

(3) **The correspondence problem:**
How do we explain such correlations between phonology, semantics, and syntax?

1.1 F-marking

“I suggest the following way, which does minimal violence to the theory as a whole. One artificial construct is required: a **syntactic marker F** which can be associated with any node in the surface structure... Two systems of rules will make use of the marker F, one in the semantics and one in the phonology.”

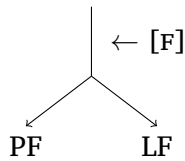
— Jackendoff 1972: 240 (emphasis ours)²

¹ kgbranan@nus.edu.sg, mitcho@nus.edu.sg. We thank Henrison Hsieh and Zheng Shen and the audience at SICOGG 22 (2020) for comments on earlier versions of this presentation and its claims, and many many others who have informed our thinking through conversations in the past.

² An abstract feature underlying both pitch accent placement and focus interpretation goes back to at least “[+Prominent]” in Fischer 1968, discussed in Anderson 1972.

In modern terms, we might call F-marking a feature, which is then interpreted at the interfaces:

(4) **The inverted Y-model (Chomsky and Lasnik, 1977; Ladusaw, 1983; a.o.):³**



The sentence pairs above vary in the position of F-marking:

- (5) a. Alex (only) gave [Brie]_F a flower.
b. Alex (only) gave Brie [a flower]_F.

- The phonology (can) reflect F-marks in its prosody: In English and many other languages, every F-marked constituent bears a pitch accent; see e.g. Selkirk 1984 §5.3.2.
- F-marking indicates the *logical focus* — the locus of variation across *alternatives* that are used for the interpretation of focus-sensitive operators (e.g. *only*, *even*), for discourse congruence, etc. See e.g. Rooth 1985, 1992, Krifka 2008.
- ▶ Syntactic F-marking has been called “the standard GB/Minimalist approach to focus” (Szendrői, 2004: 232) and remains so today. But it is not without criticism:
 - The insertion of [F] in the narrow syntax violates Inclusiveness (Chomsky, 1995: 209). (Zubizarreta 1998: 30, Szendrői 2004: 237–239)
 - Some have therefore entertained models of focus correspondence without F-marking.
 - After reviewing F-marking vs F-less theories, Szendrői (2004: 232) concludes: “neither of the approaches can be favoured over the other one on conceptual grounds.”

1.2 Today’s question

As a concrete hook into the F-marking debate, today we (re)frame the debate around (6):

- (6) **The syntactic reality question:**
Are there (*morpho*)*syntactic* processes that make reference to F-marking?

- If yes: Great! F-marking is real, so the correspondence question is (more) straightforward.
- If no: We must aggressively pursue/adopt F-less approaches to focus phenomena.

³ In fact, consideration of focus played a large part in the motivation to abandon Deep Structure (Chomsky, 1970), where the Katz-Postal hypothesis claimed that sentence meaning was fully represented (Katz and Postal, 1964). See Jackendoff 1972: 229–236 for this history.

Roadmap

§2 Yes! There is F-marking in the syntax	mitcho
§3 No! There is no F-marking in the syntax	Kenyon
§4 A sketch of an F-less world	mitcho

2 Yes! There is F-marking in the syntax

I (mitcho) argue that, yes, there are morphosyntactic processes that target F-marking:

- ① [F] gets attracted for movement
- ② [F] gets agreed with
- ③ [F] is retained under ellipsis

2.1 Focus movement ①

Many languages have constructions move focused phrases to dedicated positions:

- (7) a. Kenyon will lose this debate.
b. It's [Kenyon]_F that ____ will lose this debate.
c. It's [this debate]_F that Kenyon will lose ____.
- (8) Mari [egy kalapot]_F názett ki ____ magának. (Hungarian; É Kiss, 1998: 249)
Mary a hat.ACC picked VM herself.DAT
'Mary picked [a hat]_F for herself.'

- Identification of the target of movement requires reference to [F].

2.2 Pied-piping

Of course, what is moved is sometimes not just what is F-marked — i.e. the logical focus, as determined by the interpreted semantics. This is *pied-piping* (Ross, 1967).

- (9) It's (only) [Kenyon's [second]_F argument] that ____ will be compelling.
- (10) Anna [a [tegnapi]_F cikkeket] olvasta _____. (Hungarian; Horvath, 2000: 199)
Anna the yesterday's articles-ACC read
'Anna read [yesterday]_F's articles (not today's).'

There are broadly two approaches to pied-piping in the literature:

1. Feature-percolation: (Chomsky 1973 a.o.; see also Heck 2009)
The [F] feature can be inherited by (certain) containing phrases.
 2. Particle/(Q) insertion: (Horvath 2000, 2007; Cable 2010 a.o.)
What is actually being targeted for movement is a phrase formed by a particle, **PRT** (Q for Cable). The particle then must be in a particular local configuration with [F] (or *wh*).
- Notice that both of these approaches still make reference to the position of focus / [F].

2.3 Focus agreement ②

Movement is certainly the most widely described and studied instance of a syntactic response to focus. But other syntactic processes can target [F] too. For example:

- The Papuan language Lavukaleve has focus particles (*f*- and *h*-series), which inflect for the φ -features of their focus (Terrill 2003; see also Gould 2012).

The focus constructions in (11) trigger the appearance of a sentence-final *h*-series focus marker, which agrees in φ -features with the focused constituent.⁴

- (11) **Focus agreement in Lavukaleve** (Terrill, 2003)
- a. [nalo ga]_F ta la-na o-ne-Ø **hi.** p. 209
intestines(n) ART.SGN just 3DUMO-in 3SGS-give-SGN HEO.3SGN
'...then he just gave [the offal_{neut}]_F to them_{dual.masc}.'
- b. [Ngai]_F ta buku hoina a-nuve-a **heo.** p. 313
1sg(f) just conch(m) DEM.SGM 3SGMO-own-SGF HEO.3SGF
'Only [I_{fem}]_F own that conch_{masc}.'⁵
- c. [Foiva vo]_{F-ne} fo'foira o-a-i-v **hiv.** p. 209/296
PRO.PL 3PLO-with work(f) 3SGFO-1SGS-do-PL HEO.3PL
'It was with [them]_F that I did work_{fem}.'

- The existence of [F]-targeting φ -agreement strengthens the argument for [F] in syntax.
- Whereas focus movement may, in some cases, be amenable to a non/less-syntactic account — e.g. one where focus “movements” have a prosodic (non-featural) motivation, to ensure alignment of focus with prosodic edges (see e.g. Féry, 2013) — such alternate analyses do not extend to focus agreement.
 - φ -agreement is a syntactic process *par excellence*; e.g. the result of Agree.
 - Furthermore, there are many φ -targets in (11), so [PROBE: φ] is insufficient. We need Agree to find a target with [F], i.e. using [PROBE:F], and then copy back the φ -features of its target (see Baier 2018 for independent motivation for this possibility).⁶

⁴ The suffixal agreement marker on the verb also targets the focused constituent, which then fails to express preverbal agreement (Terrill 2003: 245–246; cf Kinyalolo’s constraint). But as noted by Terrill (2003: 296), the focus is within a PP adjunct in (11c) and thus both preverbal subject and object agreement are retained.

⁵ For first and second-person targets, these markers have the option of just expressing gender and number (using the third-person paradigm) instead (Terrill, 2003: 274).

⁶ Alternatively, the probe could be [PROBE:F+ φ], seeking a [F, φ] goal; see e.g. Van Urk 2015; Erlewine 2018 for composite probes of this form.

2.4 Fragments and ellipsis ③

(12B) appears to just be a *fragment*, corresponding here to the *wh*-word in (12A).

- (12) A. *Who* did Alice see?
B. [Beth]_F.

A widely adopted approach to fragments is to treat them as underlyingly clausal, but the result of an ellipsis process (Merchant 2004, Weir 2014 a.o.; but see also Ginzburg and Sag 2000; Stainton 2006; Jacobson 2016).

There are broadly two approaches to fragment-generating clausal ellipsis:

1. The focused constituent moves out of the clause, which is then elided:

(13) [Beth]_F [~~Alice saw _____~~]

2. The focused constituent stays in situ, and the surrounding material is deleted:

(14) [~~Alice saw~~ [Beth]_F] (See Griffiths & Struckmeier, later today for discussion.)

- In either case, we again need some syntactic reference to the logical focus / [F].

Summary

Syntactic processes clearly make reference to [F]:

- ① [F] gets attracted for movement
- ② [F] gets agreed with
- ③ [F] is retained under ellipsis

And as a bonus, with the syntactic reality of [F] firmly established, the correspondence problem is (more) easily resolved!

3 No! There is no F-marking in syntax

Here I introduce two new empirical challenges against F-marking in the syntax:

① Another class of mismatches

Mismatches (like pied-piping) can be even worse than we thought, and motivate a closer look at the role of *particles*.

- A proposal and rebuttal to the Yes position:

What we thought was reference to [F] (①, ②, ③) is reference to *particle phrases*.

② Evidence from *secondary fronting in pied-piping*

In particular, systematic differences in behavior between *wh*-elements and focus strongly challenge the position that [F] is syntactically real.

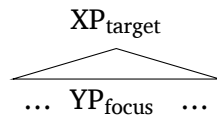
Then in §4, after you've all been convinced, we'll discuss what an F-less world might look like.

3.1 Another mismatch: Anti-pied-piping (Branan and Erlewine, 2020) ①

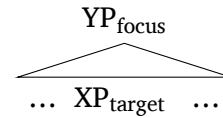
We've already seen that morphosyntactic processes that putatively target an F-marked element (①, ②, ③) sometimes instead target some other element nearby, as in *pied-piping* (15).

- ▶ I now present another form of mismatch, schematized in (16):

(15) **Pied-piping:**



(16) **Anti-pied-piping:**



- For pied-piping (15), it is natural to describe the morphosyntactic target as related to [F] “from above” (§2.2).
- ▶ However, anti-pied-piping (16) will lead to us more seriously divorce the target of such operations from the logical focus.

(17) **Anti-pied-piping in Japanese particle placement:** (based on Kuroda, 1965: 81)
 [[Hanako]-**mo** daigaku-ni hairi]_F, [[Fujiko]-**mo** yome-ni it]_F-ta.
 Hanako-also college-DAT enter Fujiko-also bride-DAT go -PAST
 ‘[Hanako entered college]_F and [Fujiko got married]_F, too.’

(18) **Anti-pied-piping in Hungarian focus movement:** (Kenesei, 1998: 77)
 Péter [**a Hamletet**] [olvasta fel ____ a kertben]_F, nem pedig [úszott]_F.
 Peter the Hamlet read VM the garden.INE not rather swim
 ‘Peter [read out Hamlet in the garden]_F, rather than [swim]_F.’

- These are examples of sentence focus (roughly TP/*v*P) in Japanese and predicate focus (roughly *v*P/VP) in Hungarian.
- A morphosyntactic strategy for marking focus targets a *proper subpart* of the logical focus (subject in Japanese, direct object in Hungarian).

Patterns like these are widely attested: in Branan and Erlewine 2020, we show such patterns in roughly 50 languages from around 30 distinct genera.

- ▶ No existing theory for pied-piping mismatches that I’m aware that can account for patterns like these.
 - Percolating [F] downwards won’t provide a straightforward solution...
 - ... since it runs into an A-over-A problem.

More generally...

(19) **Empirical claim:** There are no morphosyntactic process “targeting focus” that does not tolerate any pied-piping or anti-pied-piping type mismatches, always targeting *specifically* the logical focus, as determined semantically.

We therefore need a theory where *all* morphosyntactic reference to focus is in fact indirect.

3.2 A proposal and rebuttal to §2: The role of particles

Let's revisit the role of *particles*, following Horvath 2000, 2007 and Cable 2010 on pied-piping.

(20) **Analytical claim:** All (apparent) morphosyntactic reflexes of focus involve probing/identifying a *particle phrase*, not the logical focus (via [F]).

- Particle phrases are formed by adjoining a particle PRT to a constituent.⁷ These particles may be unpronounced, following Horvath and Cable.
- The particle PRT itself may be *semantically inert*, with a corresponding operator OP on the clausal spine which then introduces the corresponding semantics (see also Lee, 2004; Hirsch, 2017). This is crucial for modeling anti-pied-piping; on this view, there is no expectation that PRT's sister is the focus or contains the focus.

Of course, in order to explain the fact that particles often *do* adjoin directly to the logical focus, we have to then explain where particles go.

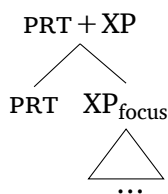
(21) **The particle placement problem:** (which we return to in section 4)
Given a structure XP, a portion(s) of which may be focused, how does the grammar determine where to adjoin a particle within XP, without F-marking?

Although this is certainly a non-trivial problem, once we solve it (once) in a manner allowing for observed mismatches (pied-piping, anti-pied-piping, etc.), all apparently focus-targeting morphosyntactic processes can then refer to the output of this process.⁸

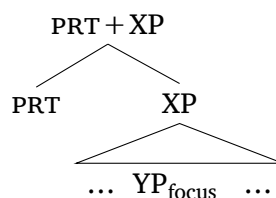
- The particle theory defuses all of the arguments for F-marking in section 2, without syntactic reference to [F].

First, the particle is introduced into the structure:

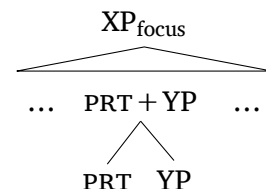
(22) **No mismatch:**



(23) **Pied-piping:**



(24) **Anti-pied-piping:**



Focus movement ①:

Movement targets the particle phrase, following Horvath 2000, 2007; Cable 2010. Recall that PRT may be unpronounced.

⁷ See Branan and Erlewine 2020 for discussion of the timing of particle introduction.

⁸ This is spiritually similar to the intention of Rooth 1992 and his focus interpretation operator (squiggle, ~), to pursue a more restrictive grammatical theory which severely limits reference to focus in the semantics.

1. Secondary fronting does not itself pied-pipe.
2. Secondary fronting applies to *wh*-movement but not focus movement.

(27) **Tzotzil** (Aissen, 1996: 481, 485)
 I-'ixtalaj [DP s-kayijonal [DP y-osil [DP li j-tot]]]-e.
 ASP-ruin A3-firelane A3-land the A1-father -ENC
 'My father's land's firelane was ruined.'

(28) a. [*Buch'u* [DP s-kayijonal [DP y-osil ____]]] i-'ixtalaj ____?
 ↑ ↑ ↑
 who A3-firelane A3-land ASP-ruin
 'Whose land's firelane was ruined?'
 b. * [[*Buch'u* [DP y-osil ____]] [DP s-kayijonal ____]] i-'ixtalaj ____?
 ↑ ↑ ↑
 who A3-land A3-firelane ASP-ruin

► The contrast in (28) shows — although Tzotzil allows pied-piping in *wh*-movement — secondary fronting inside the pied-piped constituent does not itself allow pied-piping.

- Follows straightforwardly if pied-piping involves movement of a particle phrase...

... while secondary movement targets specifically [WH].

- Suppose a particle (Cable's Q) is merged to the *wh*-containing DP in cases of pied-piping:

(29) ruined [PRT+DP PRT [DP firelane [land *who*]]]

- This PRT might be specified to probe for [WH], in the cases of secondary fronting:

(30) ruined [PRT+DP *who* PRT [DP firelane [land ____]]]
 ↑

- A higher [PRT] probe can then attract the entire PRTP:

(31) [PRT+DP *who* PRT firelane land ____] ruined ____
 ↑

- Secondary fronting targets [WH], so only the *wh*-element moves.
- Pied-piping is impossible here, since PRT doesn't probe for [PRT], but for [WH].
- The primary fronting itself, of course, is movement of the PRT phrase.

Notice that secondary fronting in (30) was possible due to probing by PRT for [WH].

- Secondary fronting of focus should not be possible, because [F] is not a syntactic feature!

There are many languages with secondary fronting in *wh*-movement, where it has been noted that there is no corresponding secondary fronting in focus movement:

(32) **Quiégolani Zapotec** (Black, 1994: 168–169)

N-dux [DP xnaa noo] [DP lo noo].
 S-angry mother 1EX face 1EX
 ‘My mother was angry with me.’ (literally “my face”)

(33) a. * [DP Lo txu] n-dux xnaa noo ____?
 ↑
 face who s-angry mother 1EX

b. [Txu [DP lo ____]] n-dux xnaa noo ____?
 ↑ ↑
 who face s-angry mother 1EX
 ‘With whom was my mother angry?’ (literally “whose face”)

(34) a. [DP Lo Jose], n-dux xnaa noo ____?
 ↑
 face Jose s-angry mother 1EX

b. * [Jose [DP lo ____]], n-dux xnaa noo ____?
 ↑ ↑
 Jose face s-angry mother 1EX
 ‘My mother’s angry with [Jose]_F.’ (literally “Jose’s face”)

- The same contrast — secondary fronting in *wh*-movement but not in focus movement — has also been explicitly observed in Copala Trique (Broadwell and Key, 2004), K’iche’ (Broadwell, 2005), and San Dionisio Ocotepéc Zapotec (Broadwell, 2010).

This pervasive distinction between *wh*-elements and logically focused elements is *expected* in a world without F-marking.

- PRT might be specified to probe for [WH], triggering so-called secondary fronting.
- Were there F-marking in the syntax, we might then expect PRT to (be able to) attract [F].
- The systematic absence of secondary fronting in focus-pied-piping, in languages that have secondary fronting with *wh*-pied-piping, is immediately explained if there is never any F-marking in the syntax.
- PRT_[PROBE:F] would be an impossible lexical item, since there’s no [F] in the syntax.

Summary

- ❶ Mismatches in syntactic reference to focus are even worse than we might have thought, motivating an abandonment of syntactic reference to [F].
 - ❷ The behavior of secondary fronting strongly suggests that reference to [F], unlike the lexical feature [WH], really is impossible.
- Instead, all apparent reference to focus is in fact reference to particle phrases, defusing the arguments in §2.

(Concession and) Objection!

- The arguments above indeed defuse the initial arguments for direct syntactic reference to focus (①, ②, ③), and argument ② in fact strongly suggests that there is no [F] to refer to.
- But the heterodox position needs to account for the basic facts! Recall:

(3) The correspondence problem:

How do we explain such correlations between phonology, semantics, and syntax?

- In other words: how would such a model account for the distinction we started out with?

- (35) a. Alex only gave BRIE a flower.
b. Alex only gave Brie a FLOWER.

- And I will also remind you of another problem you have: the *particle placement problem*. For example, how do we derive the following contrast, without reference to [F]?

- (36) Intended: ‘Alex only gave [Brie]_F a flower.’
a. Alex gave *only* Brie a flower.
b. *Alex gave Brie *only* a flower.

(Assuming the *only*s here are semantically inert particles, with a contentful ONLY operator above, following e.g. Hirsch 2017.)

4 A sketch of an F-less world

In order to live in the F-less world, we indeed have to solve two problems:

1. The semantic correspondence problem:

How can our interpretation be sensitive to focus, without reference to F-marking?

2. The particle placement problem: = (21)

Given a structure XP, a portion(s) of which may be focused, how does the grammar determine where to adjoin a particle within XP, without F-marking?

4.1 Semantic correspondence without F-marking

Let’s step back and remind ourselves of the semantic effect of “focus-sensitivity”:

- Certain phenomena need to identify a *set of alternatives* to quantify over. “Focus” is the locus of variation across these alternatives (Rooth 1985; Krifka 2008, a.o.).
- It’s important to recognize that the exact set of alternatives is *always* underdetermined.

1. The exact position of focus itself is often underdetermined by the surface form.
As already discussed in Halliday 1967: 207–208, Chomsky 1970, and Jackendoff 1972, if not earlier, F-marking is not directly represented by prosody in English:¹¹

(37) **From Chomsky 1970: 91–93, reformatted with F-marking notation:**

Was it an ex-convict with a red SHIRT that he was warned to look out for?

- a. ‘Was it [an ex-convict with a red shirt]_F...’
— No, he was warned to look out for [an AUTOMOBILE salesman]_F.
- b. ‘Was it an ex-convict [with a red shirt]_F...’
— No, he was warned to look out for an ex-convict [wearing DUNGAREES]_F.
- c. ‘Was it an ex-convict with [a red shirt]_F...’
— No, he was warned to look out for an ex-convict with [a CARNATION]_F.
- d. ‘Was it an ex-convict with a red [shirt]_F...’
— No, he was warned to look out for an ex-convict with a red [TIE]_F.

Idea: Use the phonology to restrict possible focus construals.

- ▶ Start with a phonological structure (metrical/prosodic information) and allow that to restrict the possible positions of focus, which ultimately is underspecified.
 - See e.g. Neeleman and Reinhart 1998; Reinhart 2006; Szendrői 2001, 2003 (see discussion in Szendrői 2004; Arregi 2016), Roberts 1997: 148; recently Büring 2015, 2019.
2. Even when the position of focus is clear, we still don’t know the exact set of alternatives that we refer to; we only know its *shape*.

(38) Q. Where in Europe have you
been before?
A. I’ve only been to Berlin.

(39) Q. Where in Germany have
you been before?
A. I’ve only been to Berlin.

Idea: We can look at the discourse and let that inform our idea of the set of alternatives.

- ▶ More specifically, we could even imagine that the alternatives that focus-sensitive operators refer to are always *Questions Under Discussion*, and therefore can be partially determined by the structure of the discourse. (*Partially*, as QUDs can also be implicit.¹²)
- See e.g. Roberts 1996/2012; Beaver and Clark 2008 and much subsequent work.
- ▶ With these two ideas — looking at the phonology and the discourse, and letting both inform our assumed choice of alternatives — we can get a long way towards triangulating the set of alternatives without direct reference to the position of focus.
- In a production context, starting from an intended meaning (see also Sauerland and Alexiadou, 2020), we can imagine different phonological choices and use the heuristic above as a filter.
- But does it get us all the way there? (for audience participation)

¹¹ In fact, even this picture is a simplification, even just for English. See for example Wagner 2005 on effects related to givenness. See also the title of Bolinger 1972.

¹² See also Kadmon and Sevi 2011 for critical discussion of the idea that focus association is always via reference to (possibly implicit) QUDs.

4.2 Syntactic correspondence (particle placement) without F-marking

Idea: Particle placement is also based on the phonological structure:

- ▶ A particle adjoins to a constituent that is aligned with a phonologically prominent word.
- See Branan and Erlewine 2020 (revision in prep) for a definition of “aligned with” which serves to address observed leftmost requirements and preferences in both pied-piping and anti-pied-piping particle placement.
- Particles may also avoid adjoining to given material (see e.g. Schwarzschild, 1999) (if such information is visible) or deaccented material.
- ▶ This reliance on phonological information predicts that particle placement may behave somewhat differently in a language without prosodic reflexes of focus.

Ngamo (Chadic) has focus particles that can appear in various positions in the clause, independent of where the focus is:

- (40) **Particle placement in Ngamo** (Grubic, 2015: 188)
- (Yak) Kule (yak) salko (yak) [bano]_F (yak'i) mano (yak'i).
only Kule only build.PRF only house only last.year only
'Kule only built [a house]_F last year.'

Notably, Ngamo doesn't have prosodic reflexes of focus (Grubic, 2015), so there is even less information that can be used to inform the grammar in where the particle should be adjoined.

Q: How can particle placement refer to the phonology, if its output (particle phrases) then feeds the syntax?

A: We propose that particle placement takes place during **cyclic Spell-Out** by phase (Uriagereka, 1999; Chomsky, 2000, 2001). When a phase undergoes Spell-Out:

- i. the pronunciation of its terminal nodes, their word order, and prosodic phrasing are calculated (see e.g. Dobashi 2003, 2010; Ishihara 2004, 2007; Fox and Pesetsky 2005; Kratzer and Selkirk 2007; Kahnemuyipour 2009; Sato 2012);
- ii. the particle can be Late Adjoined, with reference to this information.¹³

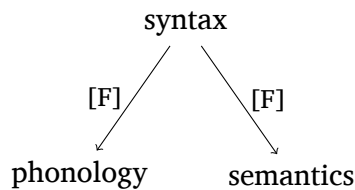
Further syntactic operations can then build on this result. See Branan and Erlewine 2020 for further discussion.

5 Conclusion

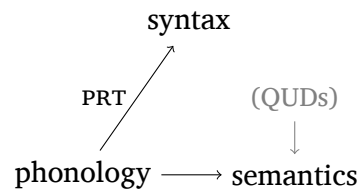
- ▶ There are compelling reasons that suggest that there is no F-marking in syntax — i.e. a syntactic feature annotating the logical focus.
- We believe this forces us to abandon the widely adopted F-marking approach (41) and instead aggressively pursue an F-less theory of grammar. We sketched how this might be possible in §4, also schematized in (42), but other options may also be possible.

¹³ The new particle phrase may also optionally move to the edge of the phase.

(41) **Correspondence with F-marking:**



(42) **Correspondence without F-marking:**



- We should also be investigating the syntactic reality — as evidenced by direct, non-mismatching syntactic targeting — of other purported information-structural features in the syntax ([TOP], [CT], [G]).

References

- Aissen, Judith. 1996. Pied-piping, abstract agreement, and functional projections in Tzotzil. *Natural Language & Linguistic Theory* 14:447–491.
- Anderson, Stephen R. 1972. How to get ‘even’. *Language* 48:893–906.
- Arregi, Karlos. 2016. Focus projection theories. In *The Oxford handbook of information structure*, ed. Caroline Féry and Shinichiro Ishihara. Oxford University Press.
- Baier, Nico. 2018. Anti-agreement. Doctoral Dissertation, University of California Berkeley.
- Beaver, David Ian, and Brady Clark. 2008. *Sense and sensitivity: How focus determines meaning*. Wiley-Blackwell.
- Black, Cheryl. 1994. Quiegolani Zapotec syntax. Doctoral Dissertation, University of California Santa Cruz.
- Bolinger, Dwight. 1972. Accent is predictable (if you’re a mind-reader). *Language* 48:633–644.
- Branan, Kenyon, and Michael Yoshitaka Erlewine. 2020. Anti-pied-piping. URL <https://ling.auf.net/lingbuzz/005351/current.pdf>, manuscript, National University of Singapore.
- Broadwell, George Aaron. 2005. Pied-piping and optimal order in Kiche (K’iche’). Manuscript, University of Albany.
- Broadwell, George Aaron. 2010. Two movement paradoxes in Zapotec. In *Proceedings of LFG10*, 149–164.
- Broadwell, George Aaron, and Michael Parrish Key. 2004. Pied-piping with inversion in Copala Trique. Presented at SSILA.
- Büring, Daniel. 2015. Unalternative semantics. In *Proceedings of SALT 25*, 550–575.
- Büring, Daniel. 2019. Focus, questions, and givenness. In *Questions in discourse*, ed. Malte Zimmermann, Klaus von Stechow, and Edgar Onea, volume 2, 6–44. Brill.
- Büring, Daniel, and Katharina Hartmann. 2001. The syntax and semantics of focus-sensitive particles in German. *Natural Language & Linguistic Theory* 19:229–281.
- Cable, Seth. 2010. *The grammar of Q: Q-particles, wh-movement, and pied-piping*. Oxford University Press.
- Chomsky, Noam. 1970. Deep structure, surface structure and semantic interpretation. In *Studies in general and oriental linguistics*, ed. Roman Jakobson and Shigeo Kawamoto, 62–119. TEC Corporation for Language Research.

- Chomsky, Noam. 1973. Conditions on transformations. In *A festschrift for Morris Halle*, ed. Stephen R. Anderson and Paul Kiparsky. New York: Holt, Reinhart, and Winston.
- Chomsky, Noam. 1995. *The minimalist program*. MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: the framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. Roger Martin, David Michaels, and Juan Uriagereka, 89–156. MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 1–52. MIT Press.
- Chomsky, Noam, and Howard Lasnik. 1977. Filters and control. *Linguistic Inquiry* 8:425–504.
- Dobashi, Yoshihito. 2003. Phonological phrasing and syntactic derivation. Doctoral Dissertation, Cornell University.
- Dobashi, Yoshihito. 2010. Computational efficiency in the syntax–phonology interface. *The Linguistic Review* 27:241–260.
- Erlewine, Michael Yoshitaka. 2017. Vietnamese focus particles and derivation by phase. *Journal of East Asian Linguistics* 26:325–349.
- Erlewine, Michael Yoshitaka. 2018. Extraction and licensing in Toba Batak. *Language* 94:662–697.
- Erlewine, Michael Yoshitaka. forthcoming. Mandarin exhaustive focus *shì* and the syntax of discourse congruence. In *Particles in German, English, and beyond*, ed. Remus Gergel, Ingo Reich, and Augustin Speyer. John Benjamins.
- Fischer, Susan. 1968. On cleft sentences and contrastive stress. Manuscript, MIT.
- Fox, Danny, and David Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31:1–45.
- Féry, Caroline. 2013. Focus as prosodic alignment. *Natural Language & Linguistic Theory* 31:683–734.
- Ginzburg, Jonathan, and Ivan Sag. 2000. *Interrogative investigations*. CSLI Publications.
- Gould, Isaac. 2012. Even *feo* and *heo* (and *meo*) agree: Focus agreement in Lavukaleve. Manuscript, MIT.
- Griffiths, James. 2019. A Q-based approach to clausal ellipsis: Deriving the preposition stranding and island sensitivity generalisations without movement. *Glossa* 4.
- Grubic, Mira. 2015. Focus and alternative sensitivity in Ngamo (West-Chadic). Doctoral Dissertation, University of Potsdam.
- Halliday, Michael A. K. 1967. Notes on transitivity and theme in English, part 2. *Journal of Linguistics* 3:199–244.
- Heck, Fabian. 2009. On certain properties of pied-piping. *Linguistic Inquiry* 40:75–111.
- Hirsch, Aron. 2017. An inflexible semantics for cross-categorial operators. Doctoral Dissertation, Massachusetts Institute of Technology.
- Horvath, Julia. 2000. Interfaces vs. the computational system in the syntax of focus. In *Interface strategies*, ed. H. Bennis, Martin Everaert, and Eric Reuland, 183–206.
- Horvath, Julia. 2007. Separating “focus movement” from focus. In *Clausal and phrasal architecture: Syntactic derivation and interpretation*, ed. Simin Karimi, Vida Samiian, and Wendy K. Wilkins, 108–145. John Benjamins.

- Ishihara, Shinichiro. 2004. Prosody by phase: Evidence from focus intonation–*wh*-scope correspondance in Japanese. In *Interdisciplinary studies on information structure 1*, ed. Shinichiro Ishihara, Michaela Schmitz, and Anne Schwarz, 77–119.
- Ishihara, Shinichiro. 2007. Major phrase, focus intonation, Multiple Spell-Out. *The Linguistic Review* 24:137–167.
- Jackendoff, Ray. 1972. *Semantic interpretation in generative grammar*. MIT Press.
- Jacobs, Joachim. 1986. The syntax of focus and adverbials in German. In *Topic, focus, and configurationality*, ed. Werner Abraham and Sjaak de Meij, 103–128. John Benjamins.
- Jacobson, Pauline. 2016. The short answer: implications for Direct Compositionality (and vice versa). *Language* 92:331–375.
- Kadmon, Nirit, and Aldo Sevi. 2011. Without ‘focus’. In *Formal semantics and pragmatics: Discourse, context, and models*, The Baltic International Yearbook of Cognition, Logic and Communication, 1–50.
- Kahnemuyipour, Arsalan. 2009. *The syntax of sentential stress*. Oxford University Press.
- Katz, Jerrold J., and Paul M. Postal. 1964. *An integrated theory of linguistic descriptions*. MIT Press.
- Kenesei, István. 1998. Adjuncts and arguments in VP-focus in Hungarian. *Acta Linguistica Hungarica* 45:61–88.
- Kratzer, Angelika, and Elisabeth Selkirk. 2007. Phase theory and prosodic spellout: The case of verbs. *The Linguistic Review* 24.
- Krifka, Manfred. 2008. Basic notions of information structure. *Acta Linguistica Hungarica* 55:243–276.
- Kuroda, Sige-Yuki. 1965. Generative grammatical studies in the Japanese language. Doctoral Dissertation, Massachusetts Institute of Technology.
- Ladusaw, William A. 1983. Logical form and conditions on grammaticality. *Linguistics and Philosophy* 6:373–392.
- Lee, Youngjoo. 2004. The syntax and semantics of focus particles. Doctoral Dissertation, Massachusetts Institute of Technology.
- Merchant, Jason. 2004. Fragments and ellipsis. *Linguistics and Philosophy* 27:661–738.
- Neeleman, Ad, and Tanya Reinhart. 1998. Scrambling and the PF-interface. In *The projection of arguments: Lexical and compositional factors*, ed. Miriam Butt and Wilhelm Geuder, 309–353. CSLI Publications.
- Reinhart, Tanya. 2006. *Interface strategies: optimal and costly computations*. Number 45 in Linguistic Inquiry Monographs. MIT Press.
- Roberts, Craige. 1996/2012. Information structure in discourse: Towards an integrated formal theory of pragmatics. In *Papers in semantics*, ed. Jae-Hak Yoon and Andreas Kathol, volume 49 of *OSU Working Papers in Linguistics*. Reprinted in *Semantics & Pragmatics* 5(6), 1–69, 2012.
- Roberts, Craige. 1997. Focus, the flow of information, and Universal Grammar. In *The limits of syntax*, ed. Peter W. Culicover and Louise McNally, 109–160. Academic Press.
- Rooth, Mats. 1985. Association with focus. Doctoral Dissertation, University of Massachusetts, Amherst.

- Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1:75–116.
- Ross, John Robert. 1967. Constraints on variables in syntax. Doctoral Dissertation, Massachusetts Institute of Technology.
- Sato, Yosuke. 2012. Multiple Spell-Out and contraction at the syntax-phonology interface. *Syntax* 15:287–314.
- Sauerland, Uli, and Artemis Alexiadou. 2020. Generative grammar: A meaning first approach. *Frontiers in Psychology* 11.
- Schwarzschild, Roger. 1999. Givenness, avoidf and other constraints on the placement of accent. *Natural Language Semantics* 7:141–177.
- Selkirk, Elisabeth O. 1984. *Phonology and syntax*. MIT Press.
- Smeets, Liz, and Michael Wagner. 2018. Reconstructing the syntax of focus operators. *Semantics & Pragmatics* 11:1–27.
- Stainton, Robert J. 2006. Neither fragments nor ellipsis. In *The syntax of nonsententials: Multidisciplinary perspectives*, 93–116. John Benjamins.
- Szendrői, Kriszta. 2001. Focus and the syntax-phonology interface. Doctoral Dissertation, University College London.
- Szendrői, Kriszta. 2003. A stress-based approach to the syntax of Hungarian focus. *The Linguistic Review* 20:37–78.
- Szendrői, Kriszta. 2004. Focus and the interaction between syntax and pragmatics. *Lingua* 114:229–254.
- Terrill, Angela. 2003. *A grammar of Lavukaleve*. Mouton de Gruyter.
- Uriagereka, Juan. 1999. Multiple spell-out. In *Working minimalism*, ed. Samuel David Epstein and Norbert Hornstein, 251–282. MIT Press.
- van Urk, Coppe. 2015. A uniform syntax for phrasal movement: A Dinka Bor case study. Doctoral Dissertation, Massachusetts Institute of Technology.
- Wagner, Michael. 2005. Prosody and recursion. Doctoral Dissertation, Massachusetts Institute of Technology.
- Weir, Andrew. 2014. Fragments and clausal ellipsis. Doctoral Dissertation, University of Massachusetts Amherst.
- Zubizarreta, Maria-Luisa. 1998. *Prosody, focus, and word order*. MIT Press.
- É Kiss, Katalin. 1998. Identificational focus versus information focus. *Language* 74:245–273.