The cartography of the left periphery:
- The status of criterial markers.
- The role of interface principles.
- The role of locality.
- Freezing effects.
- Properties and consequences of labeling.

LUIGI RIZZI
TG3
Variation in topic constructions: Uniqueness vs. multiplicity of topics,

In Italian (and many other languages) multiple topics are possible:

(1)a Darò il tuo libro a Gianni domani
   ‘I will give your book to Gianni tomorrow’

b A Gianni, il tuo libro, glielo darò domani
   ‘To Gianni, your book, I will give it to him tomorrow’

c Il tuo libro, a Gianni, glielo darò domani
   ‘Your book, to Gianni, I will give it to him tomorrow’
In English, a single topic per clause is natural:

(2) a I will give your book to John tomorrow
    b To John, I will give your book __ tomorrow
    c John, I will give your book to __ tomorrow
    d Your book, I will give __ to John tomorrow

(3) a * To John, your book, I will give __ __ tomorrow
    b * Your book, to John, I will give __ __ tomorrow
    c * John, your book, I will give __ to __ tomorrow
    d * Your book, John, I will give __ to __ tomorrow
Variation in topic constructions: Uniqueness vs. multiplicity of topics,

In Italian two direct object topics are possible:

(1)a Ho convinto Gianni ad affittare la macchina
   ‘I convinced Gianni to rent the car’

   b Gianni, la macchina, lo ho convinto ad affittarla
   ‘Gianni, the car, I convinced him to rent it’

In English, a single topic is possible:

(2)a I convinced John to rent the car
   b John, I convinced ___ to rent the car
   c The car, I convinced John to rent ___
   d* John, the car, I convinced ___ to rent ___
An independent difference between English and Italian

In English, the topic is linked to a gap: in Italian, an object topic is obligatorily resumed by a clitic:

(1)  Your book, John will give __ to Mary

(2)a  Il tuo libro, Gianni lo darà __ a Maria
    b* Il tuo libro, Gianni darà __ a Maria

Why is clitic resumption obligatory in Italian?
Cinque (1990): a gap not bound with the clause is interpreted as a variable, but the topic is not an operator, so a variable remains unbound, in violation of Chomsky’s (1986) Full Interpretation.

What about English?
Topicalization in English

Chomsky 1977, Cinque 1990: English has no clitics, but it may utilize a null operator (of the kind used in many constructions across languages, appositive relatives, easy to please, parasitic gaps, etc.) to connect the topic and the variable:

(3) Your book, **Op** I will give ___ to Mary

This analysis is made immediately plausible by the fact that in closely related languages, like Dutch, topicalization may use an overt operator:

(4) Die man (*die*) ken ik ___ (Dutch: Koster 1978)

‘That man, I know’
Intervention effects and Relativized Minimality

Relativized Minimality:

In configuration ... X ... Z ... Y ... A local relation is disrupted between X and Y when:

1. Z hierarchically intervenes between X and Y, and
2. Z is a position of the same type as X


(1) **What** do you think [ **John** read __ ]?

(2) * **What** \textsubscript{Q} do you wonder [ **who**\textsubscript{Q} read __ ]?
The ban against a double topic in English as a RM effect

(1) * John Op the car Op I convinced __ to rent __

If topicalization involves a null operator in English, in cases of double topicalization one operator will inevitably move across the other, in violation of RM.
Cases of multiple movement to the LP in English

It is not the case that English systematically disallows multiple movements to the LP. A topic can co-occur with a preposed adverbial PP:

(1) Words like that, in front of my mother, I would never say __ __ (I. Roberts, p.c.)

What position does the adverbial PP target here? It presumably is in the LP, as it precedes the subject position.
A special position for highlighted adverbials: Mod(ifier)

(1)a  Mary rapidly left the room  
     b  Rapidly, Mary left the room

(2)a  John carefully unrolled the carpet  
     b  Carefully, John unrolled the carpet

Here the adverbial is not properly focal (at least, not corrective or mirative focus), nor topical (there is no connection to the previous discourse as required for genuine topics).

There appears to be a special position for highlighting adverbials, called Mod(ifier). The intonation of the Mod construction is hard to distinguish from Top, but it is interpretively different from Top (no connection to previous discourse), and there is syntactic evidence that Top and Mod are different positions.
Anti-adjacency

Among many other distinguishing properties, preposed adverbials alleviate that-trace effects (Bresnan 1977), whereas genuine topics do not:

(1)  

a * This is the man who I think that __ will buy my house next year 

    b  This is the man who I think that, next year, __ will buy my house 

    c * This is the man who I think that my house, __ will buy__ next year 

An analysis of this phenomenon would require an analysis of the that-trace effect, but the simple contrast between topicalisation and adverb preposing already supports the hypothesis that Top and Mod are different positions.
Double movement to the LP

If adverbial phrases (including adverbial PP’s) can selectively target Mod, the representation of Roberts’ sentence is

(1) Words like that **Op**, in front of my mother **Mod** I would never say __ __

In which RM is not violated (Op and Mod belong to different feature classes, in terms of the system of featural RM in Rizzi 2004).

In fact, “in front of my mother” has the same alleviating effect for that-trace that adverbial have:

(2) Here is the man who I think that, in front of my mother, __ would never say words like that
Double movement of Top and Foc

This is fine in Italian, as Foc, an operator feature (like Q, etc.) does not interfere with Top:

(1) A Gianni Top, QUESTO LIBRO Foc gli dovreste dare __ __, non quest’altro
    ‘To Gianni, THIS BOOK you should give, not that one’

But it is deviant in English, where Top also requires a null Op, which belongs to the operator class much as Foc, whence a RM effect:

(2) ?? John Top Op, THIS BOOK Foc you should give __ to __, not that one
Another example with Subj and Obj

(1) Gianni Top IL TUO LIBRO Foc __ dovrebbe leggere __, non quello di Piero
   ‘Gianni, YOUR BOOK __ should read __, not Piero’s’

(2) * John Top Op YOUR BOOK Foc __ should read __, not Piero’s

Again, in Italian Top and Foc do not interfere, as they belong to different classes of features. In English, the Top construction requires the null operator Op, which belongs to the same class as Foc (operators), whence the RM effect.
Another difference between English and Italian: Haegeman (2012) on topics in adverbial clauses

Assuming Cinque’s analysis, Haegeman (2012) traces to the same explanatory scheme another distributional differences between English and Italian topicalization. In Italian a topic structure is possible in various kinds of adverbial environments which disallow the construction in English, e.g., in temporal adverbial clauses:

(102) Quando gli esami di primo anno li hai superati __, ti puoi iscrivere al secondo anno.
     ‘When the first year exams you them have passed, you can register for the second year’

(103) * When the first year exams you have passed __, you can register for the second year
Haegeman (2012)

Then, Haegeman argues, if the subordinator *when* is moved from an IP internal position, it necessarily crosses the null operator associated to the topic; as *when* itself plausibly belongs to the class of operators, the derived configuration violates featural Relativized Minimality:

(1) [ You *when* have passed the first years exams ] you can register for the second year

(2)* When$_{op}$ the first year exams Op you ___ have passed ___ you can register for the second year
In Italian, no intervening Op

As the Italian topicalization construction involves no null operator, but only a topic (crucially, not a member of the operator class), no violation of locality arises. So, another apparently unrelated distributional difference can be deductively connected to the fundamental difference between English and Italian topicalization, the involvement of a null operator in the former by not in the latter.

(1) Quando$_{\text{Op}}$ gli esami di primo anno$_{\text{Top}}$ li hai ___superati __, ti puoi iscrivere al secondo anno.

‘When the first year exams you them have passed, you can register for the second year’
Adv preposing in English is possible

Again, Mod is different from Top, and adverb preposing to Mod is consistent with the adverbial clause context:

(104) When, in a few years Mod, ___ Mary applies for graduate school, she ...
Locality would not be sufficient to rule out a double focus

A locality approach to the ban against two LP foci?

(105) * A MARIA, IL LIBRO devi dare __ __, non a Piero, il disco
   ‘TO MARIA, THE BOOK, you should give, not to Piero, the record

A locality approach would not be general enough. Certain PP’s are base-generated in the LP (Reinhart 1982), where they “set the scene” for the state of affairs presented in the following clause:

(106)a  In this picture of John, he looks sick
   b  * In this picture of John, he found a scratch
   b’  * In this picture of John, he found a scratch <in this picture of John>
Double focus in Reinhart’s sentences

(107)a  NELLA FOTO, Gianni sembra il più alto, non nel ritratto
   ‘IN THE PICTURE Gianni looks the tallest one, not in the portrait’

b  Nella foto, GIANNI sembra il più alto, non Piero
   ‘In the picture, GIANNI looks the tallest one, not Piero’

c  * NELLA FOTO  GIANNI sembra il più alto, non nel ritratto, Piero
   ‘IN THE PICTURE  GIANNI looks the tallest one, not in the portrait, Piero’
Reinhart’s sentences and double focus

If Reinhart’s analysis is on the right track, the double focus in (107)c plausibly is not ruled out by locality:

(109)c’ * NELLA FOTO Foc1 __ ... GIANNI Foc2 ... __ sembra il più alto, non nel ritratto, Piero

‘IN THE PICTURE GIANNI looks the tallest, not in the portrait, Piero’

So, an interface analysis is needed anyway for such cases.
Criterial Freezing

(1)a  John wonders [which book Q [ Bill read __ ]] 
   b  * Which book does John wonder [ __ Q [ Bill read __ ]]  
      (Lasnik & Saito 1992)

(2) Criterial Freezing: A phrase satisfying a Criterion is frozen in place

Under this view, A’-movement chains are a way to connect a thematic position to a scope-discourse position, and they are in fact delimited by these two positions

Can a descriptive principle like (2) be deduced from more general principles?
The « inactivation » approach

Chomsky (1995):

A-movement can take place when the moved element has a feature to check

(2) John seems [ __ to be sick ]

(3) * John seems [ __ is sick ]
Bošković (2008): inactivation in A’-chains

(1) John wonders [ Q [ Bill read which\textsubscript{Q} book ]] \rightarrow movement

(2) John wonders [\textbf{which\textsubscript{Q} book} Q [ Bill read \_
\_
\_ ]] \\

At this point, Q is checked, so that the phrase is not movable, and the following cannot be derived:

(3) * \textbf{Which\textsubscript{Q} book} does John wonder [ \_
\_
\_ Q [ Bill read \_
\_
\_ ]]
More complex cases are not amenable to inactivation: Q and Foc

If a phrase contains two criterial features, the inactivation approach would predict that the phrase could move to one position and check one feature, and continue to move to another position and check the other feature, but this never happens:

(1) Foc John wonders \([Q [ \text{Bill read } \textit{which}_Q \textit{BOOK}_{\text{FOC}} ]] \) (not which article)

(2) Foc John wonders \([\textit{which}_Q \textit{BOOK}_{\text{FOC}} Q [ \text{Bill read } \_ ] ] \) (not which article)

(3) * \(\textit{Which}_Q \textit{BOOK}_{\text{FOC}} \) Foc John wonder \([ \_ Q [ \text{Bill read } \_ ] ] \) (not which article)
More complex cases: Q and Top

(1) \([\text{quale}_Q \ \text{di questi libri}_{\text{Top}}]\)
   ‘Which one of these books’

(2) Gianni si domandava \([\text{quale}_Q \ \text{di questi libri}_{\text{Top}}]\) Q \([\text{volessimo leggere} \___]\)
   ‘Gianni wondered which one of these books we wanted to read’

(3) \([\text{Di questi libri}_{\text{Top}}]\) Top Gianni si domandava \([\text{quale}_Q \ ___\) Q \([\text{volessimo leggere} \ ___\)]\]
   ‘Of these books, Gianni wondered which one we wanted to read’

(4) * \([\text{Quale}_Q \ \text{di questi libri}_{\text{Top}}]\) Top \([\text{Gianni si domandava} [\ ___\ Q \text{volessimo} \ [\text{leggere}\ ___\]]]\]
   ‘Which one of these books Gianni wondered we wanted to read read’
A revision of criterial freezing

(3)  [Di questi libri] Top Gianni si domandava [ [quale Q ___ ] Q [volessimo leggere ___ ]]  
‘Of these books, Gianni wondered which one we wanted to read’

The possibility of subextracting a constituent from the criterial configuration shows that the original formulation is too strong

(1) Criterial Freezing I: A phrase satisfying a criterion is frozen in place

(2) Criterial Freezing II: In a criterial configuration the criterial goal is frozen in place

The « criterial goal » is the element marked with the criterial feature and attracted (with a phrase containing it) to the LP.
Subextraction is possible, but not pied-piping of the whole phrase: Q and Q

(1) \([\text{quanti}_Q \text{ capitoli di quale}_Q \text{ libro}]\)
   How many chapters of which book’

(2) Di quale libro \(Q\) non sai \([\text{quanti capitoli } __] \ Q\) dovremo leggere \(__\)?
   ‘Of which book don’t you know how many chapters we should read’

(3) * Quanti capitoli di quale libro \(Q\) non sai \( __ \) \( Q\) dovremo leggere \(__\)?
   ‘How many chapters of which book don’t you know we should read?’
The whole criterial configuration can be moved but not undone

An entire criterial configuration can be moved as a whole, for instance, an indirect question can be clefted or topicalized, but the criterial configuration cannot be “undone”:

(1)a  E’ [[quantit\textsubscript{Q} libri di questo autore] Q [siano stati pubblicati nel 1967]] Foc che non è chiaro __

‘It is how many books by this author have been published in 1967 that it isn’t clear’

b  [[Quanti libri di questo autore] Q [siano stati pubblicati nel 1967]] Top non lo so davvero __

‘How many books by this author have been published in 1967, I really don’t know

So, a criterial configuration cannot be “undone” by movement, while less can be extracted (subextraction), or the whole configuration can be moved.
The status of subjects

Languages typically show that the subject must vacate its thematic position:

(1) * __ will [ Mary meet Bill ]   (in a declarative)

Even in VSO languages there is evidence that the subject leaves the thematic position, as is shown by the possibility of an intervening adverb:

(6) Chuala Roise (go minic) an t-amhran sin   (McCloskey 1997)
   Heard Roise often that song
Subject as a halting point of A-chains

But at some point subject movement must stop: there must be a “high” subject position acting as the fundamental “halting” position for A-movement

(8)a Mary will [ __ meet Bill ]
   b Mary seems [ __ to be likely [ __ to be nominated __ ]]

(9) There is a Subject Criterion

(10) The interpretive counterpart of subjecthood: an argument is selected and taken as the starting point in the description of the event, which is presented as “being about” that argument.
Subject as expressing the « aboutness » relation

The “aboutness” effect is clearly illustrated by active-passive pairs:

(11)a  Piero ha colpito Gianni
      ‘Piero has hit Gianni’

       b  Gianni è stato colpito da Piero
      ‘Gianni has been hit by Piero’

The same “hitting” event is presented as being about the agent in (11)a, and about the patient in (11)b. So, passivisation may be seen as a device to shift aboutness from one argument to another in the argument structure of the verb.
The Calabrese effects

The Calabrese effect: *pro* in the following clause (in the same complex sentence, or in discourse) always picks out the aboutness subject, the agent in the active and the patient in the passive (Calabrese 1986):

(12)a Quando Mario$_i$ ha picchiato Antonio$_k$, *pro$_i*$$_k$ era ubriaco

‘When Mario hit Antonio, pro was drunk’ \hspace{1cm} (pro = Mario)

b Quando Antonio$_k$ è stato picchiato da Mario$_i$, *pro$_{i,k}$* era ubriaco

‘When Antonio was hit by Antonio, pro was drunk’ \hspace{1cm} (pro = Antonio)
All new contexts

This also happens in “all new” discourse contexts:

(13) Q: Che cosa è successo?
   ‘What happened?’

   A Un ragazzo, ha buttato a terra un vecchio
   ‘A boy threw an old man to the ground’

   A’ … poi pro ha cominciato a urlare
   ‘…then pro started to scream’

In (13)A, both a boy and an old man are new information, and still pro in the immediately following sentence is restricted to pick out the subject. So, the test is not sensitive to the informational property of givenness, but to the structural position of the antecedent. If the subject of (13)A’ is the overt pronoun lui, the coreference option shifts, and the natural interpretation is that the old man started screaming.
All new contexts

We have parallel effects when the all-new sentence is passivized: the interlocutor can choose to answer question (14)Q with a passive sentence, as in (14)A; again, in the following sentence (14)A’, pro picks out the surface subject of predication, in this case the patient of the passive sentence:

(19)Q: Che cosa è successo?
‘What happened?’

A  Un vecchio, è stato buttato a terra da un ragazzo,
‘An old man was thrown to the ground by a boy’

A’  ... poi  pro, ha cominciato a urlare
‘...then pro started to scream’
Addendum: Topic in English is incompatible with other operator constructions

Judgments: Tom Meadows. Thanks!

(1) John, Bill talked to __ yesterday
(2) * John, who talked to __ yesterday?
(3) * John, did you talk to __ yesterday?
(4) * John, talk to __ tomorrow!
Wh operators

(1) John, Bill talked to __ yesterday
(2) * John Op who\textsubscript{Q} talked to __ yesterday?

It is ok as hanging topic in English, involving resumption, no movement and no operator:

(5) As for John, who talked to him yesterday?

With Italian CILD it is also fine:

(6) A Gianni, chi gli ha parlato ieri?

This may involve movement (will go back to this question), but does not involve any operator, so no RM violation.
Yes-no questions

(3) * John, did you talk to __ yesterday?

It is plausible that yes-no questions involve a null operator: direct evidence for this: in V-2 language, yes-no questions are V1, with the first position plausibly occupied by the operator:

(6)a  Gestern hat Hans das Buch gekauft
     b  hat Hans das Buch gekauft?
     c  $\text{Op}_{\text{yes-no}}$ hat Hans das Buch gekauft?

So we have a RM violation in (3):

(6) * John $\text{Op}$ $\text{Op}_{\text{yes-no}}$ did you talk to __ yesterday?
Yes-no questions compatible with Hanging Topic in English and ClLD in Italian

(8) As for John, did you talk to him yesterday?

(9) A Gianni, gli hai parlato ieri?

If (3) is perceived as less deviant than (2), this may have again to do with the different nature of the operators involved (argumental vs clausal)

(2) * John, who talked to __ yesterday?

(3) * John, did you talk to __ yesterday?

Such finer distinctions would justify a detail experimental (with Likert scales, etc.) in view of building a more refined, quantitative model of syntactic well-formedness.
Top incompatible with imperatives in English

(4) * John, talk to __ tomorrow

Again, it is plausible that imperatives involve a null Imp operator, given that we have V1 structures in V2 languages:

(9)a Nimm das Buch    (vs Das Buch nehmen)
   b Lies das Buch      (vs Das Buch lesen)

So, presumably there is an imperative operator, which also licenses the null 2p subject
Top incompatible with imperatives in English

(10) * John Op_{imp} talk to __ tomorrow

Here we have a RM violation, but not with Hanging Topic in English:

(11) As for John, Op_{imp} talk to him tomorrow

Nor with CILD in Italian:

(12) A Gianni, Op_{imp} parlagli domani
Finer judgments

(2) * John, who talked to __ yesterday?

(3) * John, did you talk to __ yesterday?

(4) * John, talk to __ tomorrow!

TM: these are all ill-formed, but (3) is slightly less deviant than (2) and (4). This should be tested with a detailed quantitative experimental study.

If confirmed, a possible speculation would be that in wh-questions we have an argumental operator, and also in imperatives the operator has a connection with argumenthood because it licenses a 2P subject.

So, argumental operators in this sense may trigger a stronger RM effect on another argumental operator (licensing the Topic) than a pure clausal operator, like the one in yes-no questions.
A classical line of research (e.g., Li & Thompson 1976) addresses similarities and differences between subjects and topics. Let us focus on this issue on the basis of the analysis developed so far.

Both subject and topic involve aboutness. In a subject - predicate configuration, the predicate says something about the subject; in a topic – comment configuration, the comment says something about the topic (Reinhart 1981).

But the appropriateness conditions for the use of topics are stricter, though: in “what happened?” contexts, a subject can be felicitously used, but a topic cannot:
Subject and topic

(22)Q: Che cosa è successo?
‘What happened?’

A: Un ragazzo ha buttato a terra un vecchio
‘A boy threw an old man to the ground’

A’: # Un vecchio, un ragazzo lo ha buttato a terra
‘An old man, a boy threw him to the ground’
A condition on felicitous use of topics

(23) Q: Che cosa è successo a tuo fratello?
    ‘What happened to your brother?’
A: Mio fratello, un ragazzo lo ha buttato a terra
    ‘My brother, a boy threw him to the ground’

Here the brother is introduced in the context, hence it can be felicitously picked out as a topic. The relevant notion seems to be akin to Pesetsky’s (1987) D(iscourse)-linking.
Subject and topic

(28) **Top**: a. Interpret the Spec as a D-linked argument about which a comment is made

   b. Interpret the complement as the comment about the Spec.

(29) **Subj**: a. Interpret the Spec as the argument which the predicate is about.

   b: Interpret the complement as the predicate
Properties of Subj

(22) Properties of Subj:

a. ... Fin ... Subj ... Phi ... T ............ (Cardinaletti 2004, etc.)

b. Subj attracts a nominal element to its Spec.

c. Subj triggers the aboutness interpretation at the interface

NB: the Calabrese effect is sensitive to the aboutness property: in NSL, pro subject picks out the referent of the aboutness subject of the preceding clause.
Overt realizations of Subj?

Languages using a system of subject clitics distinct from the agreement morphology on V may instantiate Subj (Rizzi 1986, Poletto 2000, Manzini and Savoia 2005, etc.)

(23)a El fío el mangia l pom (Milano)
‘The boy Subj eats the apple’

b Qualchidun al telefonara al profesuor (Forni Avoltri, Friulian)
‘Somebody Subj will phone the professor’

c Nisciun u me capissce (Alassio)
‘Nobody Subj me understands’ (Poletto 2000, 142)
Subject – object asymmetries as freezing effects

(25)a * Who do you think [ that [ ___ Subj will come ]]?  
   b Who do you think [ that [ Mary Subj will meet ___ ]]?  

The that-trace effect, or the Fixed Subject Constraint (Bresnan 1977), analyzed as ECP violations in GB, can now be derived derived by Criterial Freezing: who moves to Spec-Subj in (25a), and it is frozen there and becomes unextractable.

(26) You think that who Subj will come

*
Subj and thetic / categorical judgments (Kuroda 1992)

In Cardinaletti’s analysis, Subj is limited to what Kuroda called a “categorical judgment”, as opposed to a “thetic judgment”, marked by different case endings in Japanese:

(1) John-ga Mary-ni kisusiteiru.
   John-Nom Mary-Dat is-kissing
(2) John-wa Mary-ni kisusiteiru.
   John-Top Mary-Dat is-kissing

(1) involves what Kuroda calls a thetic judgment while (2) involves a categorical judgment. As far as judgments are concerned, (1) "expresses a simple recognition of the existence of an actual situation" while (2) "expresses a cognitive act of attributing to a specific entity the function it has in the situation." (Kuroda 1992, 23). I.e., a relation akin to topic-comment.
A problem

If Subj, and the criterial status of the subject position, were restricted to Kuroda’s categorical judgment, the freezing effect in subject position would be restricted to categorical sentences.

But clearly that-trace effects generalize to all sentences, so a freezing approach limited to categorical sentences would be insufficiently general.
A solution: the Calabrese effect is found both in categorical and thetic judgments

Thanks to Dr. Jun Abe

(1) John-ga Mary-ni kisu- is-teiru.
John-Nom Mary-Dat is-kissing

(3) Mary-ga John-ni kisu-are-teiru.
Mary-Nom John-by is-being-kissed
"Mary is being kissed by John."

(4) A: (1) or (3)
B: [e] siwase-soo da ne.
   happy-look copula
"[e] looks happy, isn't [e]?

("ne" is a kind of tag question marker)
“Apart from the reading in which [e] refers to John and Mary, I have a strong intuition about the difference of the antecedent of the null subject, depending on which sentence you use for (A): in the case of (1), the person who looks happy is John while in the case of (3), the person who looks happy is Mary.”
A solution

In conclusion, also in Kuroda’s thetic judgments we have a manifestation of the Calabrese effect.

If the effect is the diagnostic for the special interpretive property that goes with the Subj Criterion, the property is therefore shared by both kinds of Kuroda’s subjects, hence we can conclude that the Subject Criterion holds of clausal subjects in general.

We will therefore continue to assume that Subj is a property of all clauses (our way of expressing the EPP in the GB sense).

Then, that-trace effects qua freezing effects are expected to hold of clausal subjects in general.

NB; Kuroda’s categorical judgments may simply be cases in which the subject is a topic.
Subj –Obj Asymmetries with indirect questions

That-trace effects are not found in certain varieties of English (Sobin 2005). Asymmetries in cases of extraction from indirect questions are found systematically:

(26)a * Which mechanic do you wonder whether ___ Subj could fix the car?
   b ? Which car do you wonder whether the mechanic Subj could fix ___?

(27)a * Which mechanic do you wonder how ___ Subj could fix the car?
   b ? Which car do you wonder how the mechanic Subj could fix ___?

(28)a * Which mechanic do you wonder what __ Subj could fix?
   b ?(?) Which car do you wonder who Subj could fix __?
Subj-Obj asymmetries in non-finite contexts: across complementizer *for*

Adapted from Kayne (1980), Postal (1974)

(1) I would prefer [ for [ John Subj to talk to Mary]]

(2) a * Who would you prefer [ for [ __ Subj to talk to Mary ]]? 

   b Who would you prefer [ for [ John Subj to talk to __ ]] 

(3) Who do you work for __?
Asymmetries across P+Acc-ing

Kayne 1980, reprinted in Kayne 1983, 28

(1) We’re in favor [ of [ him studying linguistics ]]

(2) * The only one who we are in favor [ of [ __ Subj studying linguistics ]] is John

(3) Linguistics is what we are in favor [ of [ him Subj studying __ ]]

(4) What are they in favor of __?

Again, it is not straightforward to differentiate (2)-(4) in terms of government pattern, whereas the ill-formedness of (2) directly follows from freezing under the Subject Criterion.
Asymmetries in French

(1) Je crois que Jean viendra
   ‘I believe that Jean will come’

(2) * Qui crois-tu que __ viendra?
   ‘Who do you think that __ will come?’

(3) Qui crois-tu que Jean va rencontrer __?
   ‘Who do you think that Jean is going to meet __?’
Comparison ECP – Freezing - 1

An ECP approach to the asymmetries, based on the idea that a trace should be properly governed is too weak, because it fails to naturally distinguish between

(2) * Who would you prefer [ for [ ___ Subj to talk to Mary ]]? 

(3) Who do you work for ___?

If preposition for is an appropriate governor for the trace, why should complementizer for not be?

Freezing under the subject criterion draws the distinction here.
Comparison ECP-Freezing - 1’.
Kayne 1980, reprinted in Kayne 1983, 28

(1) We’re in favor [ of [ him studying linguistics ]]

(2) * The only one who we are in favor [ of [ ___ Subj studying linguistics ]] is John

(3) Linguistics is what we are in favor [ of [ him Subj studying ___ ]] 

(4) What are they in favor of ___? 

Again, it is not straightforward to differentiate (2)-(4) in terms of government pattern, whereas the ill-formedness of (2) directly follows from freezing under the Subject Criterion.
Comparison ECP – Freezing 2.
adapted from Kayne 1981, thanks to P. Hirschbühler

(1) ?? Combien crois-tu que [__ d’invités] Subj viendront?
   ‘How many do you think that of guests will come

(2) * Combien d’invités crois-tu que __ Subj viendront?
   ‘How many of guests to you thin that will come?

(Kayne 1975, 1981, Obenauer 1976)

If what goes wrong in (2) is a government requirement, the violation would presumably hold of (2) as well.

Freezing under the Subject Criterion draws the distinction: Freezing is violated in (2) but not in (1), where subextraction does not involve the criterial goal (the marginality being due to some other constraint, left-branch extraction, etc.)
Kayne (1980) on generalizing the NIC to SIC

Kayne (1980) « Two notes on the NIC », proceedings of the Pisa GLOW

« ... we suggested that the NIC should be looked at as a (much improved) reformulation of Perlmutter’s (1971) constraint against « missing subjects »...

If that is correct, then the fact that there is an NIC and not an OIC reduces to the observation that whereas « subjects » can be considered « essential », at least in certain languages, it is unlikely that some language would have a constraint against « sentences lacking an object ».

Assuming this to be correct, that the NIC reflects the (yet to be made precise) especially prominent status of subjects ... there remain the question « why not an SIC? ».

(Kayne 1980, reprinted in Kayne 1983, 27)
Lack of that-trace effects in Null Subject Languages


(35) Chi credi che abbia telefonato?
    ‘Who do you think that has telephoned?’

(36)a Che meccanico non sai se potrebbe riparare la macchina?
    ‘Which mechanic don’t you know if could fix the car?’
    b Che macchina non sai se il meccanico potrebbe riparare?
    ‘Which car do you wonder if the mechanic could fix?’
Connection with subject inversion

(37) Connection with “free subject inversion” (Rizzi 1982, 1990): the subject can occupy a clause-final position, from where it can be extracted without violating the ECP (in the classical GB analysis):

(38)a  Credi che pro abbia telefonato Gianni

   ‘You believe that has telephoned Gianni’

   b  Chi credi [ che [ pro abbia telefonato ___ ]]?  

   ‘Who di you believe that has telephoned?’
Connection with subject inversion

This can be immediately translated in terms of the freezing approach: pro formally satisfies the Subj Criterion, thus avoiding the freezing of the thematic subject, which can be extracted from the inverted position.

(39) Chi credi [che [pro Subj abbia telefonato ____]]? (Rizzi & Shlonsky 2007)
    ‘Who do you think that has telephoned?’
Subject inversion as focalization

(40) Belletti (2002, 2004): “free subject inversion” is in fact subject focalization, involving movement of the subject to a Foc projection in the vP periphery. This is shown, e.g., by the impossibility of backward pronominalisation for postverbal subjects (test based on Chomsky 1976):

(41)a Quando pro, è annoiato, Gianni, telefona
   ‘When pro is bored, Gianni calls’

b * Quando pro, è annoiato, telefona Gianni
   ‘When pro is bored, calls Gianni (Subj)’
Lack of typological correlation between subject inversion and subject extraction

(43) But, if subject inversion is subject focalization, the inversion position cannot offer an “escape route” to avoid criterial freezing and that-trace effects: one would expect the subject to get frozen in the inverted position.

(44) In fact, a direct connection between subject inversion and the violation of that-trace, as in (37), is made implausible by typological considerations: there are Null Subject languages which do not have subject inversion (subject focalization in the low vP periphery) and still permit free violations of that-trace (Salulessa 2004 on Lingala, Chao 1981 for an early discussion of BP along similar lines, and Nicolis 2005 for a general assessment). So, the violability of that – trace in NSL’s does not seem to be contingent on “free inversion”.
That-trace violations are possible when expletive pro is available

(45) Nevertheless, the evidence that in languages NSL’s like Italian the subject is extracted from a lower position is robust and diversified (Ne cliticisation in Italian, Rizzi 1982, agreement patterns in Northern Italian Dialects, Brandi & Cordin 1989, case patterns in Arabic dialects, Kenstowicz 1989, quantier floating properties in Brazilian Portuguese, Menuzzi 2000, etc.)

(46) The correct typological connection seems to be with the availability of expletive pro (Nicolis 2005). If expletive pro is available (also in partial pro-drop languages like Brazilian Portuguese: Menuzzi 2000), it can be used to formally satisfy the subject criterion, thus permitting extraction of the thematic subject from a lower position, distinct from the lower focalization position. The availability of the low focus position for subjects is an independent property, possibly linked to the Null Subject Parameter (maybe the fact of being a NSL is a necessary condition for it), but not an automatic consequence of the NSP.
Menuuzzi’s evidence

(1) I miei studenti, che (?? tutti) hanno (tutti) risolto (tutti) il problema

‘My students, who (all) have (all) solved (all) the problem’

If the floated quantifier *tutti* is stranded in a DP position (Sportiche 1988), the fact that *tutti* cannot naturally occur in the preverbal subject position suggests that the subject has not passed through that position.
## The typological correlation

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Other skipping strategies: English

In English, if the complementizer is dropped, extraction becomes possible:

(69)a * Who do you think that __ will come?
   b   Who do you think __ will come?

(70) ... you think [ that [ who Subj __ will come ]]

Different languages use different strategies to make subject extraction possible. In (Standard) English extraction is made possible by complementizer deletion. Presumably here the whole CP+SubjP complex is truncated, so that there is no freezing position and the subject can be extracted from a lower position (say, Spec T):

(71) Who do you think { C [ Subj [ __ will come ] ]}
Other skipping strategies: Scandinavian

English appears to avoid the problem by using a reduced structure. Other languages achieve the result by introducing more structure:

(75)a  Vi ved hvem *(der) taler med Marit  

‘We know who der talked with Marit’  

(Danish, Taraldsen 1986, 2001)

b  Vi vet hvem *(som) snakker med Marit  

‘We know who som talked with Marit’  

(Norwegian, Taraldsen, op. cit.)
Scandinavian

Could it be that *der/som* directly fill the subject position, thus functioning exactly like the overt counterpart of expl *pro*? No, presumably they are in a higher position in the structure, as is shown by the fact that they interfere with V-2:

(76) Hvem (*som) snakker med Marit? (Norwegian, main questions)
    ‘Who talked with Marit?’

So, they may be the nominal counterpart of Fin, close enough to Subj to formally satisfy the Subject Criterion:

(77) ... hvem Fin[+N] Subj[+N] .... (Rizzi & Shlonsky 2007)
We proposed a similar analysis for que>qui in French:

(78) Qui crois-tu [ t’ Fin[+N] Subj[+N] [ viendra t ] ] ?
    qui
    ‘Who do you think *qui* will come?’  (Taraldsen 2001, adapted by Rizzi & Shlonsky 2007)

(79) Qui Fin[+N] Subj[+N] [ viendra t ] ?  (French dialects, Québec, etc.)
    qui
    ‘Who *qui* will come?’
Imbabura Quechua: Obj extraction or pied-piping of the complement

(1)a  ima-ta-taj  Maria-ka  [ Juzi  __  miku-shka-ta ]  kri-n?
       what-ACC-Q  Maria-TOP  José  eat-NOMINALIZER-ACC  believe-Agr

‘What does Maria believe that José ate?’

b  [ ima-ta  wawa  miku-chun] -taj  Maria  __  kri-n?
  what-ACC  child  eat  Q  Maria  believe-Agr

‘What does Maria believe the child eats?’

Lit. [what the child eats] does Maria believe?
Imbabura Quetchua: Subject « extraction » requires pied-piping of the whole clause

(1) * pi-taj Maria-ka [ __ chayamu-shka-ta ] kri-n ?
   who-Q Maria-Top arrive-NOM-ACC believe-agr
   ‘Who does Maria believe has arrived?’

(2) [pi chayamu-shka-ta] - taj Maria __ kri-n?
   who arrive-NOM-ACC Q Maria believe
   ‘Who does Maria believe (that) has arrived?’
   Lit. ‘[Who has arrived] does Maria believe?’
Freezing in the low focus position

Belletti (2002, 2004): there is a focus position in the vP periphery, typically used for focalizing a subject in NSL (Chomsky 1975: backward pronominalization is inconsistent with focus):

(82)a  Alla sua festa, Gianni ha cantato
       In his party, Gianni sung
   b * Alla sua festa, ha cantato Gianni
       In his party, sung Gianni

Normally, the use of the low focus position is optional, so in order to test freezing effects we need a construction which forces the use of low focus (this can be done straightforwardly for Q, given the selectional requirements of main verbs, and for Subj, given the EPP).
Backward anaphora as a test for focus

It is well-known, ever since Chomsky (1975), that focus is inconsistent with backward anaphora, as in (9)a vs (9)b, where John is defocused:

(9)a * His$_i$ mother will introduce JOHN$_i$ to the president

b  His$_i$ mother will introduce John$_i$ to THE PRESIDENT
Direct and inverse copular constructions

One such case may be provided by inverse copular constructions, in the sense of Moro (1997, 2000), illustrated by in pairs like

(83) Gianni è il direttore
    ‘Gianni is the director’

(84) Il direttore è Gianni
    ‘The director is Gianni’
Low focus obligatory with inverse construction

The important property of this construction for the current argument is that the subject in inverse copular sentences is always focal, as is shown by the impossibility of backward pronominalisation:

(85)a  Nella foto della sua classe, Gianni è il più bello
      ‘In the picture of his class, Gianni is the most handsome’

b * Nella foto della sua classe, il più bello è Gianni
      ‘In the picture of his class, the most handsome is Gianni’
Heycock (2012)

Direct construction:

(88)a Who is the culprit? John or Bill?
    b John is the culprit
(88’a) Tell me about John: is he the culprit, or the victim?
    b John is the culprit

Inverse construction:

(90)a Who is the culprit? John or Bill?
    b The culprit is John
(90’a) Tell me about John: is he the culprit or the victim?
    b # The culprit is John
Ruwet’s (1975) paradigm

DIRECT:

(1)a  Il carattere di Gianni, è il suo, problema principale
     ‘Gianni’s character is his main problem’

   b  Il suo, carattere è il problema principale di Gianni
      ‘His character is Gianni’s main problem’

INVERSE:

   c  Il problema principale di Gianni è il suo, carattere
      ‘Gianni’s main problem is his character’

   d  * Il suo, problema principale è il carattere di Gianni
      ‘His main problem is Gianni’s character’
The derivation of copular sentences

(16) Subj is [ [John] [ Pred [the president]]]  
     OK

(17) Subj is [John] [ Pred [the president]]  
     *

Presumably, a direct movement of the predicative DP into Spec Subj is forbidden by RM:
Conjecture: focalization of the subject is a way to circumvent the locality problem.
Focus movement as a necessary intermediate step for the inverse construction

(1) Foc [ John Pred [ the president ]]

(2) [ John Foc [ ___ Pred [ the president ]]]

(3) Subj is [ ___ Pred [ the president ]] [ John Foc ___ ]

(4) [ the president ] Subj is [ ___ Pred ___ ] [ John Foc ___ ]
The Krapova-Cinque interpretation of RM

Why doesn’t the trace of John in the PredP block A-movement of the predicative DP?

Krapova & Cinque (2008) propose the following:

(1) In ...X...Z...Y..., Z intervenes between X and Y only if all the occurrences of Z intervene.

This is to account for order preservation in languages permitting multiple wh movement:

(2) Cine cu cine  __ a votat  __ ? (who for whom voted?)
(3) * Cu cine cine  __ a votat  __ ? (for whom who voted?)

This interpretation captures the fact that the subject trace in (4) does not give rise to a RM effect because only one occurrence of the subject intervenes.
The « smuggling » step

The movement of the predicative small clause is part of a large family of leftward movements of a predicate, such as

1. passive, under Collins’ (2005) approach

2. v-projection movement in Romance causatives (ever since Kayne 1975)

3. the reordering responsible for « surprising » Adv sequences (Cinque 1999: *He doesn’t [always win] anymore__*)

4. Psych-verbs with the theme promoted to Subj position over the experiencer (Belletti & Rizzi 1988, 2012: *This worries John*)
We can now test the freezing effect in the inverse construction. A salient property of this construction, well-described in the literature (Longobardi 1985, Moro 1997, 2000) is that the postverbal subject is unmovable. Compare direct and inverse copular constructions:

(97)a Conosco Gianni, che è il direttore  
   ‘I know Gianni, who is the director’  
   b * Conosco Gianni, che il direttore è ___?  
   ‘I know Gianni, who the director is’

(98)a E’ Gianni che è il direttore  
   ‘It is Gianni that is the director’  
   b * E’ Gianni che il direttore è ___  
   ‘It is Gianni that the director is’
Criterial freezing effects in three positions

(1) I wonder [ [ which_{Q, BOOKS_{FOC}} ]_{Q} John read, not which articles

(2) Mary said [ that [ John {Subj} was here ] ]

(3) The director is John {Foc}
Criterial freezing with the Q Criterion

(1) I wonder [ which$_Q$ BOOKS$_{FOC}$ ] Q John read ], not which articles

(1’) * [ which$_Q$ BOOKS$_{FOC}$ ] I wonder [ ___ Q John read ], not which articles
Criterial freezing with the Subj Criterion

(2) Mary said [ that [ John Subj was here ] ]

(2') * John, Mary said [ that [ ___ Subj was here ] ]
Criterial freezing with the low Foc Criterion

(3) The director is John Foc

(3\') It is John that the director is ___ Foc
Chomsky (2013) on Labeling

(1) Labeling Algorithm: the syntactic object created by merge receives the label of the closest head.

(2) Labeling must be complete at the interfaces.

In this system, labeling is not a prerequisite for further applications of merge, but is required by the interpretive systems.

Hypothesis (2) implies that labeling can be delayed till the end of the phase.
An implementation (Rizzi 2013)

(1) $\alpha$ receives the label of head $H_1$ such that:

i. $\alpha$ contains $H_1$, and

ii. there is no $H_2$ such that

i. $\alpha$ contains $H_2$, and

ii. $H_2$ c-commands $H_1$.

(2) 

```
  α
 / \  
 /   
... H₁ ...
```
Three kinds of merge

(1) \[ \alpha \]
\[ H_1 \quad H_2 \]

(2) \[ \alpha \]
\[ H_1 \quad \text{Phrase}_2 \]
\[ H_2 \quad \ldots \]

(3) \[ \alpha \]
\[ \text{Phrase}_1 \quad \text{Phrase}_2 \]
\[ H_1 \quad H_2 \]
Phrase – Phrase Merge

Chomsky (2013): the labeling problem in the Phrase – Phrase configuration can be solved in two ways:

1. One phrase moves out of $\alpha$ (see also Moro 2000):

   (1)  $\text{Phrase}_1 \ldots [\alpha < ____ > \text{Phrase}_2 ]$

2. Phrase – Phrase is a criterial configuration:

   (2)  $[\alpha [\text{which}_Q \text{ book}] [\text{did}_Q \text{ you read } ____ ] ]$
The “halting problem” of (wh) movement

(1)a  You think [ C [Bill read [which_Q book]]]

   b  *  You think [α [which_Q book] [ C [Bill read ___ ] ] ]


(2) a  John wonders [ Q [Bill read [which_Q book]]]

   b  John wonders [α [which_Q book] [ Q [Bill read ___ ] ] ]

Movement must continue

(1) think....

Here *which book* must move further to permit labeling of $\alpha$ as Decl Force.
Movement can (and must) stop

(1) wonder…. α

Q
   /  \
 Q  n  Q
   /   /  \
Q Q  I
Which  n  Bill read ___

Here which book is in a criterial configuration, hence α can be labeled as Q, an embedded question. But here movement MUST stop, we have the freezing effect.
Maximality

In terms of traditional X-bar theory, intermediate projections are inert for movement, only maximal projections can undergo phrasal movement.

Under bare phrase structure, being a maximal node is not an inherent property of a node, it is a property to be determined dynamically:

1. A is maximal iff the node immediately dominating it, B, is distinct from A

2. Maximality: only maximal objects with a given label can undergo phrasal movement.
Freezing derives from labeling and maximality

As soon as a criterial configuration is created, the moved phrases ceases to be a maximal node with a given label, hence it cannot be moved alone under maximality. Only the whole criterial configuration can be moved as a whole.
Criterial freezing in general

This generalization has been argued to be derivable from the labeling algorithm (Chomsky 2013, 2015) and a maximality principle (Rizzi 2015, 2016, 2017). In a nutshell: +F labels α, so that XP_{+F} is not maximal w.r.t. +F, and only maximal nodes can be moved.
A prediction

A movement of a phrase from Spec Foc to Spec Top should be ruled out by Criterial Freezing:

This may be difficult to test if there are interpretive constraint which make it hard for an XP to bear both focal and topical interpretation.

Still, there is at least one phenomenon reported in the literature which seems to support the prediction. This concerns certain yes-no questions in Gungbe with special interpretations.
The normal order of markers in Gungbe is Top - Foc (Aboh 2004)

The normal order in Gungbe is Top – Foc, as in many other languages:

(23) Ûn sè do xwé lo yà Kòfí wè Àsíbá gbá-è ná

1SG hear that house DET TOP Kofi FOC Asiba build-3SG for

‘I heard that, as for the house, it is for KOFI that Asiba built it’

...  Top ....  Foc ....
IP movement to the LP in « special » yes-no questions

Foc IP « Disagreement » : Did he eat rise?! (he shouldn’t have

Top IP « D-linking » : Did he eat rise? (as planned)

What happens in « disagreement » and D-linked questions?
Top-Foc $\rightarrow$ Foc-Top with special yes-no questions in Gungbe (Aboh 2004)

(1) a. Ûn kànbíó dṁ Kòfì qù léśi wē? [Gungbe]
   1SG ask that Kofi eat rice FOC-INTER
   ‘I asked whether KOFI ATE RICE [e.g. he shouldn’t do so because he is taking medicine]?’

   b. Ûn kànbíó dṁ Kòfì qù léśi yā?
   1SG ask that Kofi eat rice TOP-INTER
   ‘I ask whether Kofi ate rice [as planned/mentioned]?’

   c. Ûn kànbíó dṁ Kòfì ní xɔ mó tô wē yā?
   1SG ask that Kofi MOOD buy car FOC TOP-INTER
   ‘I asked whether KOFI SHOULD BUY A CAR [as planned/mentioned]?’

   d. *Ûn kànbíó dṁ Kòfì ní xɔ mó tô yā wē?
   1SG ask that Kofi MOOD buy car TOP FOC-INTER
Successive cyclic movement of the IP is excluded by Criterial Freezing

A movement of the IP from Spec Foc to Spec Top is ruled out by Criterial Freezing:

So, the order IP – Top – Foc is correctly excluded.
A derivational option consistent with Freezing: Snowballing movement

IP moves to SpecFoc, and then the whole FocP moves to SpecTop, without violating Criterial Freezing.

But this causes the reversal of the order:  \[[\text{IP Foc}] \text{Top}\]

The reversal is thus expected under Criterial Freezing.
Top-Foc $\rightarrow$ Foc-Top with special yes-no questions in Gungbe (Aboh 2004)
Conclusion

- Foc and Top markers are part of the clausal spine in some languages, and case-like or preposition-like elements in other languages. Specific empirical evidence (coordination, interaction with other processes, etc.) is needed in a particular language.

- Freezing effects block further movement of phrases satisfying a criterion (possibly the effect is derivable from labeling and maximality).

- Freezing predicts that a Top or Foc marker cannot be stranded by moving its Spec to a higher position.

- The prediction appers to be testable in the case of special yes-no questions in Gungbe: the IP cannot move to Spec Foc and then to Spec Top stranding the Foc head and preserving the Top – Foc order. The only possibility consistent with freezing is snowballing movement, which determines a reversal of the order: IP Foc Top.