

- (2) a. * **Ga je** Ivan često čitao.
 b. Čitao **ga je** Ivan često.
- (3) a. * Ivan čitao **ga je** često.
 b. * Čitao Ivan **ga je** često.
 c. * Često čitao **ga je** Ivan.
 d. * Čitao često **ga je** Ivan.

We suggested that pre-clitic placement of verbs reflects a V-movement operation in the syntax which is triggered by the same phonological filter that is responsible for part of the clitic second phenomenon, i.e. the ill-formedness of strings which have clitics in initial position (2a). In other words, this is a case where phonological requirements condition a syntactic rule. The ungrammaticality of examples where both the verb and some other constituent precede clitics (3) supports the claim that V-movement is a Last Resort operation, one that can apply only when it is made necessary.

These conclusions are of particular interest when taken in the context of proposals concerning the organization of grammar in Chomsky's (1992) Minimalist Program. Firstly, Chomsky proposes that all derivational operations are governed by a Last Resort principle, licensed only when made necessary by some filter (well-formedness requirement on representations); secondly, he suggests that those movement operations that take place in the overt syntax, (the part feeding the phonology) are triggered by filters on PF-representations (cf. his Procrastinate principle). Chomsky's PF-related triggers are actually morphosyntactic in nature, mediated by assumptions about the sensitivity of PF to properties of morphosyntactic symbols. However, the existence of purely phonological triggers for syntactic rules instantiated by our analysis fits rather well into the general scheme of Chomsky's model. We discuss this in more detail in Wilder & Čavar (1993).

Here, we are concerned with V-clitic orders that arise in contexts other than sentence initial position, creating a "clitic third" effect:

- (4) X — V — CL . . .
 → where X contains phonologically overt material

The existence of sequences of this form (4) raises questions about our analysis of V-movement as triggered by a phonological requirement banning string-initial clitics. If it were true that V-CL combinations arise purely in order to avoid string-initial clitics, then of course, we expect them to occur only in strictly clause-initial position. Since this is not so, we need to focus on a wider range of constructions than the simple finite clauses so far investigated, in particular on those cases where the configuration (2) arises. The conclusion we reach is that the proposal that verbs move in the syntax in response to needs of the PF-representation can be upheld, if additional syntactic factors conditioning V-movement are recognized.

The paper is organized as follows. In the remainder of this section, we review our previous analysis of Clitic Second and Last Resort V-fronting. Section 2. sketches potential problem cases. In section 3. we address cases that threaten the thesis that clitic placement is a purely syntactic operation. In 4., we consider clitic-third effects, which raise questions about the last resort nature of V-fronting. We examine data pertaining to a wider range of constructions than considered previously, including infinitives and coordination structures. The main conclusion is that a

purely prosodic account of the conditioning of V-fronting is insufficient. In section 5, we sketch a way of integrating additional syntactic factors that condition the V-fronting process in terms of cyclicity constraints on movement. Finally, we present a new argument in section 6, for treating V-fronting as a phonologically triggered operation, based on the interaction between V-movement and ellipsis in coordination structures.

1.2 Clitics and Clitic Placement

Croatian has a rich system of clitic forms, which includes Dative and Accusative (i.e. non-subject) pronominal clitics; verbal clitics, which are weak (unstressed) forms of finite auxiliary verbs; and the interrogative marker (*Q*-morpheme) *li*. An overview of the main paradigms is given in the table in the appendix. We are interested here in the “C-clitic” column — on “P-clitics”, see section 4.1.1. below.

Clitic pronouns and finite auxiliaries form a cluster together with *li*, which functions as a unit with respect to word order generalizations. The sequence of clitics inside the cluster conforms to the general pattern (5):

(5) Clitic Clusters

li — auxiliary clitic — pronominal clitics — reflexive clitic — *je*

li is always initial in the clitic cluster, the auxiliary clitic *je* (= be-pres-3sg) is usually final. There is some variation in ordering of pronouns with respect to each other, with accusative-dative and dative-accusative orders both attested.

The cluster appears in second position, i.e. as the second syntactic constituent, in simple root clauses. The clitic-second-constraint in Croatian has two aspects: clitics may not appear further into the clause than second position (the Wackernagel effect, e.g. Wackernagel (1892)); and they may not appear in absolute string-initial position (the Tobler-Mussafia effect, e.g. Mussafia (1898)). Our approach involves two components: we propose a syntactic account for the Wackernagel effect, i.e. we treat clitic placement in Croatian as a syntactic process; and we attribute the Tobler-Mussafia (T.-M.) effect in Croatian to a phonological (prosodic) property of clitics. In other words, clitic forms are both syntactic clitics and phonological enclitics.

The following examples show how these generalizations apply (cf. also (1–3)):

- (6) a. *Ja sam ga često čitao.*
 I be-1sg it often read-ptc
 “I have often read it.”
- b. *Često sam ga čitao.*
- c. *Čitao sam ga često.*

In (6) the clitic cluster containing the auxiliary clitic *sam* and pronoun clitic *ga* appears in the second position, following the subject (6a), an adverbial (6b), and the participial main verb (6c). Note that since Croatian allows null pronominal subjects (cf. 6b–c), some caution is needed in interpreting these statements: in our analysis, the position occupied by subject-*pro* is generally to the right of the clitic cluster, and so is different from that taken by the pronoun in (6a).

The cluster may neither appear in first position (7a), nor in third position (7b):

- (7) a. **Sam ga često čitao.*
- b. **Ja često sam ga čitao.*

- c. *Ja često čitam knjigu.*
 I often read-1sg book
 “I often read the book.”
- d. *Ja **ga** često čitam.*
 I it often read-1sg
 “I often read it.”

The placement options for the finite auxiliary clitic contrasts with those of an ordinary finite verb, which can appear in third or fourth position (7c,d).

Consideration of root yes–no–questions (8) reveals a similar generalization for clusters containing the *Q*-morpheme *li*, here together with pronominal *ga*:

- (8) a. *Da **li ga** Ivan i Marija jesu čitali?*
 that Q it I. and M. be-3pl read-ptc
 “Did Ivan and Mary read it?”
- b. *Jesu **li ga** Ivan i Marija čitali?*
 be-3pl Q it I. and M. read-ptc
- c. * ***Li ga** Ivan i Marija jesu čitali?*

The cluster appears directly after the complementizer *da* (8a), or after the full form of the finite auxiliary (8b). (8c) shows that *li* may not appear in initial position.

The same generalizations hold for examples where the cluster contains only a pronominal clitic:

- (9) a. *Nije **ga** čitao.*
 not-be-3sg it read-ptc
 “He hasn’t read it.”
- b. *Ivan **ga** nije čitao.*
 I. it not-be-3sg read-ptc
 “Ivan hasn’t read it.”
- c. * ***Ga** nije čitao.*
- d. * *Ivan nije **ga** čitao.*

The clitic may follow the negated (full form) auxiliary (9a), or an overt subject (9b), but not in string-initial (9c) or third position (9d).

Generalizing across these placement facts, the clitic cluster follows the first major constituent, which is either a head — verb or complementizer — or a phrasal constituent. We take clitics to be X^0 -categories, generated as D-heads (pronominal clitics) or V/Infl heads (auxiliaries). In common with clitic clusters in Romance languages, the Croatian clitics cluster together under some head position high up in the clause by S-structure/Spell-Out. In Romance, this position is commonly taken to be Infl (or AGRS — cf. Kayne (1991)). In Croatian, we suppose that the position in question is the C^0 -node: specifically, right adjoined to C^0 .

This assumption can be expressed as a “clitic placement condition”:

- (10) **Clitic Placement Condition** (Croatian)
 Clitics form a cluster which must stand right-adjoined to C at S-structure (Spell-Out).

We have no explanation to offer for why clitics must congregate under C in the way they do. So we leave (10) as a stipulation. We also leave open questions concerning the specifics of clitic-movement, for example, whether or not clitics form a single complex constituent that is adjoined to C, and what intermediate movement steps are involved.

The main reason for assuming right-adjunction to C as the output of clitic-placement, rather than, say, left-adjunction to AGRS, has to do with facts of word order in subordinate clauses. Although Croatian has fairly free constituent order inside IP, no constituent may ever intervene between a clitic cluster and a lexical complementizer or initial *wh*-phrase. If clitics right-adjoin to C, then this pattern is expected: if clitics adjoin to a lower head, then independent factors must be appealed to ensure that no further (overt) material intervenes between the C-domain and the clitic cluster. We refer to Čavar & Wilder (1992) for further discussion of this point.

Under this approach to clitic-placement, there is one XP-position and one X⁰-position to the left of the clitic-cluster in its clause — i.e. Spec,CP and the C⁰-position to which the cluster itself is adjoined. The “second”-effect follows, if independent constraints prevent simultaneous filling of Spec,CP and C⁰.

The T.-M. effect (the impossibility of string-initial clitics) receives an independent account. We claim that the clitic cluster needs to attach to a stressable phonological constituent to its left in the phonological representation. The T.-M.-effect induced by clitics is a consequence of a lexical property of these clitics. We borrow a formalization of this property from Zec & Inkelas (1990) — each clitic includes a prosodic subcategorization frame (11) as part of its lexical specification:

$$(11) \quad [[\quad]_w \text{ CL }]_w$$

A clitic needs to attach to a phonological word in PF, to ensure that its prosodic subcategorization requirement is fulfilled. Inside a cluster (string of adjacent clitic forms), the first clitic must attach to an immediately preceding word — non-initial clitics can then attach to the first clitic in recursive fashion. If encliticization is not possible, for instance when no phonological word precedes the clitic in the string, an ill-formed PF-representation results. This phonological account of T.-M. is not a clitic placement mechanism; rather, it interacts with the syntactic placement by filtering out certain outputs of the syntactic clitic placement mechanism. One prediction made by this account is that material preceding the clitic-cluster is a syntactic constituent; we consider potential counterexamples in section 3.

1.3 Last Resort Verb-fronting

The T.-M. property of Croatian clitics interacts with the verb-placement in an interesting way. A potential violation of the T.-M. law — a phonological well-formedness requirement — can be avoided by fronting of a finite or non-finite verb in the syntax. This phenomenon we refer to as Last Resort V-fronting.

In periphrastic tenses, the finite auxiliary can itself be a clitic form. In such cases, if no other constituent precedes the clitic cluster — i.e. no phrasal constituent has been fronted — a non-finite verb form moves in front of the clitics. In (12a), the subject has been topicalized to Spec,CP. In (12b), the participle has moved in front of the clitics:

- (12) a. *Ivan ga je dao Mariji.*
 I. it be-3sg give-ptc M.
 ‘Ivan gave it to Mary.’

- b. *Dao ga je Mariji.*
 “He gave it to Mary.”

V-fronting is head-movement: the fronted verb left-adjoins to the C-position.

When the finite auxiliary is not a clitic form (the cluster contains only pronominal clitics), the auxiliary itself moves in front of the clitic cluster (13b). In this case, the option of fronting of the participle (13c) is “blocked” by the presence of the finite verb, which is closer to C:¹

- (13) a. *Ivan ga nije dao Mariji.*
 I. it not-be-3sg give-ptc M.
 “Ivan didn’t give it to Mary.”
- b. *Nije ga [t dao Mariji].*
- c. * *Dao ga Ivan nije t Mariji.*

In examples with simple tenses, the finite main verb moves in front of the clitic cluster (14b), where no other constituent precedes it:

- (14) a. *Ivan ga čita.*
 I. it read-3sg
 “Ivan reads it.”
- b. *Čita ga Ivan.*

Where the subject is *pro*, the verb-fronting variant may be the only possibility to avoid a T.–M. violation, as in (15) and (16):

- (15) a. * *Ga čita.*
 it read-3sg
- b. *Čita ga.*
 “He reads it.”
- (16) a. * *Ga je čitao.*
 it be-3sg read-ptc
- b. *Čitao ga je.*
 “He reads it.”

V fronting before the clitic-cluster is a root-phenomenon — it is not possible in embedded finite clauses, either for finite or non-finite verbs:

- (17) a. ... , *da ga Ivan čita*
 that it I. read-3sg
 “... that Ivan reads it”
- b. * ... , *da čita ga Ivan*
- (18) a. ... , *da je Ivan čitao knjigu*
 that be-3sg I. read-ptc book
 “... that Ivan read the book”
- b. * ... , *da čitao je Ivan knjigu*

¹The derivation (13c) also violates locality constraints on head movement.

The restriction to root clauses is reminiscent of the situation obtaining with finite verb movement in Germanic V2 languages, and may be taken to support the conclusion that the landing site for V-fronting in Croatian is C. In our analysis, since V-movement is to the left of the clitic cluster, and clitics are right adjoined to C^0 , the landing site of the verb can only be C^0 . This means that the only head constituents which can stand in front of clitics in a CP are lexical complementizers or fronted verbs.

The traditional view of this V-fronting phenomenon is, that it is directly caused by the T.–M. law. We think that this is essentially correct. The T.–M.–property of clitics acts as a trigger for V-fronting; V-raising to C in the syntax yields an input for PF in which the leftmost clitic in the cluster is preceded by a phonological word (host for encliticization), where otherwise none would be available.

The prosodic requirement of clitics (11) is the only plausible trigger for V-raising. Croatian is not a V2 language; there is no general requirement for verbs to be in C in main clauses. Verb-fronting sentences in Croatian are usually unmarked declaratives, i.e. sentences not associated with interrogative, exclamative or conditional interpretation (which are associated with construction-specific triggers for V-to-C raising in other languages like English).²

Moreover, this V-raising operation is a Last Resort operation. It only applies in the presence of clitics. In the periphrastic tense construction, the participle may not front if the auxiliary is not a clitic but a “full form”:

- (19) a. *Jesam čitao knjigu.*
 POS-be-1sg read-ptc book
 “I HAVE read the book.”
- b. * *Čitao jesam knjigu.*
- c. *Nisam čitao knjigu.*
 not-be-1sg read-ptc book
 “I didn’t read the book.”
- d. * *Čitao nisam knjigu.*

In these examples the finite auxiliaries are not clitics, so there is no T.–M. violation in (19a,c); therefore there is no trigger for V-to-C movement of the participle in (19b,d).

In neutral declarative clauses with simple tense, if there is no pronominal clitic (20a), the finite verb cannot appear in front of the subject:

- (20) a. *Ivan čita knjigu.* (unmarked declarative reading)
- b. * *Čita Ivan knjigu.* (ok under “topicalised V reading”)
- c. *Čita ga Ivan.* (unmarked declarative reading)

In (20b), the finite verb has fronted, but the sentence cannot have a neutral declarative reading — instead, it seems as if the verb is being focussed. This is a reading found where the verb is in initial position and preceding an overt subject, also where clitics are not present. So we may attribute the “topicalized V” reading to

²In interrogatives, where the *Q*-morpheme *li* is present, the pattern of V-raising is no different. A verb precedes the cluster only if no other host for the clitic cluster — a complementizer or *wh*-phrase — is available.

an independent process. The contrast between (20b) and (20c), which has a neutral declarative reading although the verb has fronted across the subject, strongly suggests that V-fronting triggered by clitics has no effect on interpretation.

Where clitics are present, V-raising is unable to apply if another element (phrase or head) precedes the clitics, so preventing a violation of T.-M. Constructions in which V-fronting is blocked include questions and declaratives with topicalization, and subordinate clauses generally. Generally, the presence of a fronted *wh*-phrase (21a), a topicalized subject (21b), a topicalized object (21c) or a base-generated lexical complementizer (21d), all serve to block V-fronting:

- (21) a. * *Koga volio je Ivan?*
 who love-ptc be-3sg I.
 b. * *Ivan volio je Mariju.*
 I. love-ptc be-3sg M.
 c. * *Mariju volio je Ivan.*
 d. * ... , *da volio je Ivan Mariju*
 that love-ptc be-3sg I. M.

There are exceptions to this generalization as it applies to pre-clitic phrases in root declarative clauses, which we discuss in section 4.2 below.

Examples corresponding to (21) in which V-fronting has not occurred are grammatical. Here, the prosodic requirements of the clitics can be satisfied by independently motivated processes — i.e. processes that are not triggered by clitics:

- (22) a. *Koga je Ivan volio?*
 who be-3sg I. love-ptc
 “Who did Ivan love?”
 b. *Ivan je volio Mariju.*
 I. be-3sg love-ptc M.
 “Ivan loved Mary.”
 c. *Mariju je Ivan volio.*
 M. be-3sg I. love-ptc
 “Mary Ivan loved.”
 d. ... , *da je Ivan volio Mariju*
 that be-3sg I. love-ptc M.
 “... that Ivan loved Mary”

Wh-movement of *koga* in (22a) is not triggered by the presence of clitics but by a *wh*-feature in C. Nor is topicalization of the subject (22b) or the object (22c) triggered by the presence of clitics. Base-generation of a lexical complementizer in C⁰ is also a process completely independent of clitics. Assuming V-raising to be a Last Resort operation triggered by the phonological requirements of clitics allows a completely general explanation of why V-fronting is blocked in all these cases. Independent syntactic processes ensure that the syntax delivers a string to PF in which clitics are preceded by a target word for encliticization. V-raising is thus rendered unnecessary, and so is excluded by the principle of Last Resort.

2 Problems

The simple account presented so far could be counterexemplified by examples of the following types:

- (23) a. CL — X
(string-initial clitics)
- b. X — CL — Y
(where X does not correspond to a syntactic constituent)
- c. X — V — CL — Y
(where X = overt material preceding V)

Examples of type (23a) are not attested in Croatian in any construction. This fact is strong evidence for the need to assume something like (11) as a phonological property of clitics, independently of the analysis of Verb-fronting. Otherwise, this stark generalization would have to be captured by reference to non-phonological factors, and it would be difficult to avoid a “conspiracy” theory of T.–M. in Croatian. The analysis we have given provides a very simple and elegant account both of the T.–M.–generalization and of Last Resort V-fronting.

However, examples of type (23a) do occur in related languages that also show clitic second characteristics, such as Czech (and possibly Slovak). Toman (1993) gives the following Czech examples in which a clitic (**bold**) stands in initial position:

- (24) a. *To bych netvrdil.*
It would-1sg not-claim
“I wouldn’t claim it”
- b. *Bych netvrdil.* (= a)
- (25) a. *To **si** myslíš.*
It REFL think-2sg
“That’s what you think.”
- b. ***Si** myslíš.* (= a)

The b.-examples, belonging to a colloquial register, involve “ellipsis” of a topicalized object. The phenomenon is similar to “topic-drop” in German — while declaratives generally have V2-order, a topicalized object can be elided in informal contexts, giving a declarative V1-string:

- (26) a. *Das würde ich nicht sagen.*
that would I not say
“I wouldn’t say that.”
- b. *Würde ich nicht sagen.* (= a)

No such case can be constructed for Croatian.

At the same time, Czech (and Slovak) have a V-fronting pattern that creates V-clitic orders that is remarkably similar to Croatian Last Resort V-fronting. If clitics in Czech do lack (11), as seems to be the case, given the well-formedness of (24b) and (25b), then there must be UG-mechanisms independent of T.–M. that can create V-clitic patterns of the type we have attributed to T.–M. This may

jeopardize our account of V–CL orders in Croatian in terms of T.–M.³ We return to these cases briefly below.

Examples of type (23b) can be found in Croatian. They have been claimed to cast doubt on the chances of a solely syntactic approach to the question of clitic placement. We discuss these cases in section 3., arguing that most examples of this type receive a satisfactory syntactic account, though an unexplained residue remains.

Examples of type (23c) can also be found. This configuration surfaces in embedded infinitives and in root clauses, where the appearance of “clitic third” order arises. This type presents a problem for our account of V–raising as a Last Resort measure to satisfy the prosodic requirements of clitics, and forms the topic of sections 4. and 5.

3 Phonological Clitic Placement?

The syntactic approach to clitic placement claims that material preceding a clitic cluster within its clause must be either a phrase that has raised to Spec,CP, a head (i.e. a verb) that has moved to C⁰, or a head introduced in C⁰ — i.e. a complementizer.

Problems for this theory are presented by examples such as (27b), in which clitics appear “inside” a phrasal constituent:

- (27) a. *Taj pjesnik **mu** **je** dao autogram.*
 this poet him_{CL} be-3sg give-ptc autogram
 “This poet has given him an autogram.”
- b. *Taj **mu je** pjesnik dao autogram.*

This type of example has been used to argue for the need to allow non-syntactic (phonological) mechanisms of clitic placement. In Ćavar & Wilder (1992), we argued that such examples do have a plausible syntactic solution, and that moreover, a model that includes phonological clitic placement operations faces more problems than it can solve. We repeat the argument here.

3.1 Subextraction

The syntactic account assigns (27b) a representation like (28). A subconstituent of the subject (*taj*) has been extracted out of DP, and moved to Spec,CP (as an instance of topicalization):

- (28) [*taj*] C⁰ + **mu** + **je** [NP t *pjesnik*] *dao autogram*

Independent evidence for this analysis comes from the fact that extraction of subconstituents from major constituent DPs (“subextraction”) to Spec,CP is possible in Croatian, independently of whether clitics are present:

- (29) a. *Ivan kupuje zeleno auto.*
 I. buy-3sg green car
 “Ivan is buying a green car.”
- b. *Zeleno Ivan kupuje auto.*
 green I. buy-3sg car

³This was pointed out to us by Michal Starke.

- c. *Kakvo Ivan kupuje auto?*
 what-kind-of I. buy-3sg car

In (29b), the topicalized constituent is a prenominal adjective (*zeleno*) extracted out of the object DP. In (29c), the *wh*-modifier *kakvo* is *wh*-extracted from the object DP. Subextraction is also possible with prenominal genitives:

- (30) a. *Ivan razbija tatino auto.*
 I. ruin-3sg fathers car
 “Ivan has ruined his father’s car.”
- b. *Tatino Ivan razbija auto.*
 fathers I. ruin-3sg car
- c. *Čije Ivan razbija auto?*
 whose I. ruin-3sg car
 “Whose car has Ivan ruined?”
- d. *Čije je auto Ivan razbio?*
 whose be-3sg car I. ruin-ptc

The genitive has been topicalized (30b), and *wh*-extracted (30c). In (30d) the genitive has been *wh*-extracted out of a fronted object, across a clitic auxiliary, giving the effect of DP-splitting by the auxiliary. So (30d) resembles (27b); we suggest a structure like (31):

- (31) $[_{CP} \text{ } \check{c}ijek \text{ (I)} \text{ je } [_{IP} [t_k \text{ auto}]_j [_{IP} \text{ Ivan razbio } t_j]]]$

3.2 Problems with Phonological Clitic Placement

As an alternative or a supplement to a syntactic account of clitic placement, appeal has been made to a phonological rule (process) of clitic placement — see for example Halpern (1992):

- (32) “A clitic cluster encliticizes to the first stressed word in some domain.”

Halpern proposes that a “last resort” phonological rule is able to move a clitic cluster rightwards, where it is generated by the syntax in string-initial position. This phonological rule is assumed to underly “constituent-splitting” phenomena such as those just discussed.

This proposal raises a conceptual issue. Phonological clitic placement is designed to move clitics from syntactically defined (“base”) positions to phonologically defined landing sites. Movement operations do not belong to the set of operations usually ascribed to the phonological component of grammar. It is a priori not a desirable step to invest phonological rules with the power to move material around in phonological representations (“phonological move- α ”) just to capture marginal cases like the ones discussed.

There are also empirical problems. Some phonologically possible landing sites for the clitic are not available. In (33a), the clitic follows a DP including a relative clause:

- (33) a. *Djevojka, koju Ivan voli, je fina.*
 girl who_{ACC} I. like-3sg be-3sg pretty
 “The girl, that Ivan loves, is pretty.”

- b. * *Djevojka koju je Ivan voli fina.*
 c. * *Djevojka je koju Ivan voli fina.*

A clitic cannot intervene in the relative clause (33b), or between the relative clause and the head-noun (33c), although these can form initial stress constituents. This type of problem is recognized by Halpern, who describes constituents that resist “penetration” by his phonological clitic placement rule as “fortresses”.

These data are predicted by the subextraction approach. The string “*djevojka + koju*” (N-head + relative pronoun) cannot be extracted, because it is not a constituent, which explains (33b). The impossibility of (33c) can be related to the fact that in Croatian, an N-head cannot be separated from the relative clause modifying it:

- (34) * [*djevojku*] *jesam vidio* [*t koju Ivan voli*]

A further problem for (32) concerns prepositions. While a preposition can receive contrastive stress, i.e. form a stress domain, a clitic cannot intervene between a stressed P and the noun in initial position:

- (35) A: *Jesi li bio U kući?*
 Be-2sg Q be-ptc IN house
 “Were you IN the house?”
 B: *Ne, PRED kućom sam bio.* / * *PRED sam kućom bio.*
 No, IN-FRONT house be-1sg be-ptc
 “No, I was IN FRONT of the house.”

The syntactic solution accounts for this case, too: a preposition cannot be subextracted from a PP.

3.3 Remaining problems

The success of the subextraction approach to “constituent splitting” depends on there being an independently motivated syntactic constituent-splitting operation that can feed the phonology. Examples like (36b) remain problematic for the syntactic approach to clitic placement:⁴

- (36) a. *U zelenoj kući je stanovao.*
 in green house be-3sg stayed
 “He stayed in the green house.”
 b. *U zelenoj je kući stanovao.*

Here, the preposition and pronominal adjective are separated from the noun of the PP by the clitic auxiliary *je*. Yet the preposition and the adjective do not form a constituent that excludes the noun, under normal conceptions of phrase structure, and so it is difficult to see how it could form the target for a movement operation. A logically possible solution would be to analyse this extraction as short extraction of N (NP) followed by remnant PP-topicalization:

- (37) [PP P [DP AP t_{NP}]] C . . . NP . . . t_{PP}

⁴This type of example was first brought to our attention by Sylke Eichler.

We have not been able to find independent evidence for this analysis.⁵

Another problem concerns examples involving the splitting of names. Although marginal for most speakers, cases like (38b) are attested:

- (38) a. *Ivan Mažuranić je bio prvi ban pučanin.*
 I. M. be-3sg be-ptc first duke people
 “Ivan Mažuranić was the first popular duke.”
- b. *Ivan je Mažuranić bio prvi ban pučanin.* (SHKJ: 496)

A clitic auxiliary intervenes between the forename and family name. It is unclear to us whether subextraction of a part of a proper name, which must be assumed to underly (38b) in a syntactic approach to clitic placement, is a possible syntactic process.

A different way of describing such cases is made available by the proposal (Chomsky (1992)) that topicalization and *wh*-movement processes are copy operations, with traces being created by PF-deletion in copies in the non-head positions of the chain. Constituent-splitting effects may then be seen as the result of selective deletion in the moved constituent and the trace:

- (39) a. *Ivan Mažuranić je (Ivan Mažuranić) bio ...*
- b. *Ivan (Mažuranić) je (Ivan) Mažuranić bio ...*

Description in terms of “selective deletion” can be extended to subextraction phenomena in general. To create an explanatory theory out of this proposal is quite another task, however.

While we are aware that these cases represent unresolved problems, we continue on the assumption that clitic placement is an exclusively syntactic process. More investigation is needed, not only to decide the status of these facts in Croatian, but to address the more general issues raised by languages in which second position clitics “split” constituents in more consistent fashion (cf. discussion in Halpern (1992)).

4 Clitic Third effects

We turn now to consider potential counterexamples of the form (23c = 40). At first sight, the account presented in section 1. seems to predict that sequences of this type should not be attested.

- (40) $X - V - CL - Y$
 \rightarrow where X is phonologically overt.

If X is phonologically overt, it provides a potential host for prosodic encliticization, thus its presence should bleed Last Resort V-fronting.

However, this will only be true provided that two further conditions are met. Firstly, phonological encliticization of CL to (the final word in) X must be independently possible. Independent factors might dictate that X be separated from CL

⁵Luigi Rizzi (p.c.) notes that an analogous problem is raised — quite independently of the clitic-second issue — by the marginal possibility of raising a *wh*-quantifier in French out of DP together with the preposition that governs it, stranding the remainder of the DP:

- i. *À combien a-t-il parlé des enfants?*
 to how-many has he spoken of-the children

by a prosodic break that hinders encliticization. Then, we would expect last Resort V-fronting to be possible. Secondly, it might be the case that the V-CL order is the result of V-fronting (to C) that is triggered independently of whether a clitic is present at all.

- (41) a. Prosodic break hinders encliticization.
 b. V-fronting has an independent trigger.

In the following, we suggest that although each of these factors may be involved with certain examples of “clitic third”, there are (at least) three classes of cases for which a general reduction to (41a or b) is not plausible. These are (i) infinitive complements to N; (ii) simple root clauses in which a phrase precedes a V-CL combination; (iii) non-initial clausal conjuncts in coordination.

4.1 Clitics in non-finite environments

We have shown above that clitics seek the next available finite complementizer as landing site in the syntax. So a clitic introduced in an embedded finite clause will attach to the head of the CP immediately containing it (and not the root C-node or a higher embedded C-node). So far we have not considered clitics in non-finite environments, nor have we addressed the question of the positions in which clitics are introduced into the structure.

We do not expect to find clitic auxiliaries — which are essentially reduced forms of finite auxiliaries — in non-finite clauses, since they would not be licensed there in any case, independently of their status as clitics. We assume them to be introduced under some finite Infl-head. If finite Infl is always dominated by finite C, there will always be a local finite C for the auxiliary clitics to move to.

With regard to the pronominal clitics, there are two possibilities. They might be weak forms of pronouns — category D, introduced into the structure in argument positions where ordinary DPs are licensed; or they may be introduced in Infl heads, maybe as a type of overt Object-agreement morpheme, so that they mark the licensing position of associated null arguments (*pro*). The latter option represents a sort of “clitic-doubling” analysis: but since Croatian does not have overt clitic-doubling (clitic associated with overt DP) outside of left-dislocation contexts, it is wiser at this stage to assume the analysis of clitics as pronominal arguments (D-elements). Under this view, it is expected that clitics will be introduced into the structure wherever corresponding non-clitic DPs can appear. An accusative clitic will represent one option used to pronominalize an accusative DP, a dative clitic will pronominalize a dative DP, and so forth.

In general, this expectation is borne out: accusative and dative DPs are licensed as complements to verbs and appear where verbs appear, in a variety of finite and non-finite clause types. In those environments, the corresponding arguments may also be cliticized. Dative DPs are also licensed as complements to predicative adjectives in finite and non-finite clauses, and these arguments may be pronominalized using the dative clitic.

4.1.1 PPs

There is one environment where the expectation is not borne out. Accusative and dative DPs appear as the complement to certain prepositions, and in these cases, the corresponding clitic does not appear in C but remains inside PP:

- (42) a. ... , *da je Ivan računao na me*
 that be-3sg I. count-ptc on me
 “... that Ivan counted on me”
 b. * ... , *da me je Ivan računao na t*

However, there is evidence for assuming that the clitic form in (42a) is to be distinguished from other pronominal clitics that adjoin to C. In a restricted class of cases — Accusative third person singular, masculine/feminine gender — the form of the pronominal that appears in PP (*nj* in 44a) diverges from the corresponding form associated with other argument positions (*ga*):

- (43) a. * ... , *da je Ivan računao na ga*
 that be-3sg I. count-ptc on him
 b. * ... , *da ga je Ivan računao na t*
 (44) a. ... , *da je Ivan računao na nj*
 that be-3sg I. count-ptc on him
 b. * ... , *da nj je Ivan računao na t*

These forms cannot be used to pronominalize other accusative arguments:

- (45) a. * ... , *da nj Ivan vidi*
 that him I. see-3sg
 b. * ... , *da Ivan vidi nj*

We suggest that Croatian disposes of a special pronominal clitic licensed only inside PPs. We call these P-clitics, distinguished from C-clitics, used elsewhere. (See table 1. given in the Appendix.) Unlike C-clitics, P-clitics are licensed at Spell-Out only inside PPs.

Now, the impossibility of (42b), (43) and (44b) can be explained by appealing to independent factors. We suppose that the DP-complement (or its D-head) cannot be extracted from the PP — Croatian does not permit preposition stranding in other environments. The examples (42b/44b) can then be seen as violating ECP or some other constraint on extraction. The impossibility of generating a C-clitic inside the PP and leaving it there at Spell-Out (43a) can be attributed to whatever factor it is that underlies the syntactic clitic placement operation, requiring that clitics attach to a finite C by Spell-Out. The possibility for using a P-clitic to pronominalize and leaving it inside the PP at Spell-Out (42a/44a) is given: these forms underlie a different placement condition from the one that governs C-clitic forms.

4.1.2 Gerunds

Croatian has two non-finite constructions in which clitics (C-clitics) appear; clausal gerunds, and infinitives (see next section). Gerunds contain a main verb bearing special morphology. A form of the verb carries an invariant suffix: generally, the morpheme *-ći* is added to the third plural present form of an imperfective verb to form a non-past gerund; the infinitive stem of a perfective verb is inflected with *-vši* to form a past gerund. Gerund clauses are adjunct clauses (generally some type of temporal adjunct), and have null subjects controlled by an argument of the superordinate clause, as illustrated in (46):

- (46) a. [*Razgovaraju-ći s njim*], *saznala je da* ...
 talk-GER with him learn-ptc be-3sg that
 “While she talked with him (talking with him), she learned that ...”
- b. *Odgovrio je [ne pogleda-vši me]*
 answer-ptc be-3sg NEG-look-GER me
 “He answered without having looked at me.”

When the adjunct contains clitics, these must appear directly following the verb, as the following paradigms indicate:

- (47) a. [*Daju-ći joj ružu*], *Damir ju je poljubio*.
 giving her rose D. her be-3sg kiss-ptc
 “Giving her a rose Damir kissed her.”
- b. * *Joj daju-ći ružu*, ...
- c. * *Daju-ći ružu joj*, ...
- (48) a. *Otišao je [ne da-vši joj ružu]*.
 leave-ptc be-3sg not-giving her rose
 “He left not giving her a rose.”
- b. * *Otišao je [joj ne da-vši ružu]*.
- c. * *Otišao je [ne da-vši ružu joj]*.

Thus gerunds display a strict internal clitic-second effect. This construction does not challenge our account of V-raising however, as we can appeal to an independent trigger for V-fronting (a case of (41b)).

Supposing that gerunds are CPs, and that the pronominal clitic in (47a/48a) is right-adjoined to C, we can deduce that the verb has raised to C by left-adjunction. However, we do not need to assume that this is a case of Last Resort fronting, driven by the need for the clitic to find a host, since the verb must front in any case, regardless of whether a clitic is present. Assuming the initial position of the verb reflects V-fronting to C, there will always be an carrier for clitics in gerund clauses, so that Last Resort operations to satisfy T.-M. are not necessitated. By the same token, the X-V-CL order in (48a) has no significance for the issue of Last Resort V-fronting.

4.1.3 Infinitives

In southern and eastern (“Old Štokavian”) dialects of the Croatian-Serbian group, as in other Balkan languages, infinitives are not used at all, being replaced by finite (subjunctive) clauses introduced by the finite complementizer *da*. In northern and western dialects (“New Štokavian”), however, infinitives are used in a number of constructions. The infinitive is characterized by an invariant verb form bearing a suffix *-ti*; infinitive clauses do not have an overt complementizer.

In one construction type, infinitives appear as complements to modal verbs (including the future auxiliary), some subject control verbs (*want*, *hope*, *try*), and the causative verb *pustiti*. Where the object of an infinitive verb is pronominalized with a clitic, the clitic climbs out of the infinitive complement and surfaces attached to the next finite C-position. As shown in (49b), climbed clitics form a cluster together with the auxiliary belonging to the higher clause:

- (49) a. *Marija je htjela [Ivanu dati knjigu].*
 M. be-3sg want-ptc I.DAT give-inf book_{ACC}
 “Maria wanted to give Ivan the book.”
- b. *Marija ju mu je htjela [dati _ _].*
 M. it him be-3sg want-ptc to-give

The pronominal clitics may not appear inside the infinitive in (49).

The environments where clitic climbing occurs in Croatian match with clitic-climbing constructions in better-studied “clitic languages” such as Italian. For the moment, it suffices to note that the data fit well with the clitic placement condition.

The possibility for a clitic to be extracted out of an infinitive clausal complement contrasts with the strict impossibility of clitic climbing out of finite complements (50c):

- (50) a. *Marija je rekla, [da Ivan čita roman].*
 M. be-3sg say-ptc that I. read-3sg novel
 “Maria said that Ivan is reading the novel.”
- b. *Marija je rekla, [da ga Ivan čita _].*
- c. **Marija ga je rekla, [da Ivan čita _].*

Clitic climbing out of finite complements is blocked in all dialects, including finite complements to verbs like *htjeti* (“want”) in dialects that use finite complements instead of infinitives in these cases.

The only apparent counterexample to the claim that clitic climbing is blocked across the finite complementizer is provided by causative constructions (cf. Ćavar & Wilder (1992)). Eastern dialects that lack infinitives use finite complements with the causative verb (51a).

- (51) a. *Marija je pustila ribu da pliva.*
 M. be-3sg let-ptc fish_{ACC} that swim-3sg
 “Marija let the fish swim.”
- b. *Marija ju je pustila da pliva.*
 M. it be-3sg let-ptc that swim-3sg
 “Marija let it swim.”

In this case, it is possible to cliticize the subject of the embedded verb to the matrix C-position (51b). This example need not be analysed as clitic extraction across a finite complementizer, though. The clitic is an accusative form, and if the embedded subject is not cliticized, it turns up as an accusative DP to the left of the embedded complementizer (51a). This indicates that in the input to cliticization, the relevant DP is already outside of the finite complement. Maybe this is a type of raising-to-object construction: alternatively, it may be a type of “control” construction, with the accusative DP a thematic argument of the causative verb that controls a silent pronoun in the embedded subject position. In any event, this case does not violate the generalization that cliticization is always to the next finite complementizer.

While some infinitives are transparent for clitic climbing, others are not. Particularly clear instances of infinitival “islands” for clitic-climbing are given in (52, 53), where an infinitive is an adjunct or complement to a noun. The examples show that the object of verb in the infinitive clause may follow or precede the infinitive verb — in this respect, infinitives differ from the gerunds discussed in the previous section:

- (52) a. *Imaš mnogo vremena [čitati knjigu].*
 have-2sg much time read-inf book
 “You have time to read the book.”
- b. *Imaš mnogo vremena [knjigu čitati].*
- (53) a. *Nada [vidjeti Ivana] bila je velika.*
 hope see-inf I. be-ptc be-3sg great
 “The hope to see Ivan was great.”
- b. *Nada [Ivana vidjeti] bila je velika.*

Although the object can be pronominalized with a clitic, the clitic may not be extracted from the infinitive:

- (54) * *Imaš ga mnogo vremena [čitati _]*

(55-56) show the possibilities for clitic placement inside the infinitive:

- (55) a. *Imaš mnogo vremena [čitati ga].*
 “You have much time to read it.”
- c. * *Imaš mnogo vremena [ga čitati]*
- (56) a. *Nada [vidjeti ga] bila je velika.*
 “The hope to see him was great.”
- b. * *Nada [ga vidjeti] bila je velika.*

In these simple cases, the only option is for the infinitive verb to precede the clitic. However, the verb is not generally obliged to appear in initial position, as shown in (52b/53b). It seems as if the same “clitic second” effect observed in finite clauses is also operative inside infinitives.

This supposition is further strengthened by examining examples where the infinitive contains more constituents, such as (57).

- (57) *Želja [Mariji dati ružu] bila je velika.*
 wish M. give-inf rose be-ptc be-3sg great
 “The wish to give Mary a rose was great.”

The examples (58–60) demonstrate the effect in infinitives more clearly. The clitic follows either the first phrase or the verb inside the infinitive:

- (58) a. *Želja [dati joj ružu] bila je velika.*
 wish give-inf her rose be-ptc be-3sg great
- b. *Želja [dati ju Mariji] bila je velika.*
 wish give-inf it-fem M. be-ptc be-3sg great
- c. *Želja [Mariji ju dati] bila je velika.*
 wish M. it-fem give-inf be-ptc be-3sg great

The clitic cannot stand in third position, following a verb and a phrase:

- (59) a. **Želja* [*Mariji dati* **ju**] *bila je velika*.
 wish M. give-inf it-fem be-ptc be-3sg great
- b. **Želja* [*dati ružu* **joj**] *bila je velika*.
 wish give-inf rose her be-ptc be-3sg great

— nor may the clitic stand in initial position in the infinitive:

- (60) a. **Želja* [**ju** *Mariji dati*] *bila je velika*.
 wish it-fem M. give-inf be-ptc be-3sg great
- b. **Želja* [**ju** *dati Mariji*] *bila je velika*.
 wish it-fem give-inf M. be-ptc be-3sg great

Let us suppose that verb-object is the basic order, so that (52a, 53a) do not involve any special V-movement. Suppose further that clitics move to a head position higher than the basic position of either the verb or the object. Where an object precedes the infinitive verb and the clitic (as in 58c), this is the result of preposing — maybe topicalization or scrambling. Let us assume that this is an independently motivated process (cf. 52b, 53b), and also that the landing site of the moved phrase is higher than the landing site of the pronominal clitics. Under these assumptions, and given the ungrammaticality of examples with clitic-initial infinitives (60), the verb fronting that yields the V-CL order in (58a-b) can be regarded as an instance of Last Resort fronting.

This case thus raises a serious problem for the analysis of Last Resort fronting in terms of the prosodic properties of clitics. Infinitives have no overt complementizer to which the pronouns may attach in prosodic structure; but the infinitive clauses in question are preceded by an external word (the N-head of the construction), yet this word seems not to be able to carry the clitic. There is no reason to suppose that the N-head is generally separated from the infinitive by a strong prosodic break in this construction, so we cannot claim that encliticization to this N is independently excluded. So it looks as if V-raising is not determined solely by the phonological requirements of the pronoun in these infinitives.

4.2 Clitic Third effects in Root clauses

Similar problems arise from consideration of a wider range of examples of root clauses. In the Last Resort analysis, V-raising in front of a clitic cluster in (root) finite clauses is triggered by prosodic requirements of the clitic. Where there is no other trigger for V-to-C-movement in root clauses, the claim that V-raising is a Last Resort response to the prosodic properties of clitics entails that V-raising should be blocked if the prosodic requirement can be fulfilled by other means.

The prediction is that an order like XP-V-CL is not possible in declaratives. This we have illustrated with examples (21–22) above. The generalization is true over a wide range of cases. However, we have been guilty of over-simplification in the discussion so far; the order: XP-V-CL is in fact possible. We have collected a series of attested examples (clitic bold, verb underlined), sorted according to the grammatical status of the initial phrasal constituent. In (61), although a clausal adjunct precedes C containing a clitic auxiliary, the participle (*bio/otišao*) has raised in front of the clitic:

- (61) a. [*Čim* **su** *ga* *organizirali*], *bio* **je** *zabranjen*.
 when be-3pl it organize-ptc be-ptc be-3sg prohibited
 “As soon as they had organized it, it had been prohibited.” (SDII-46)

- b. [*Kada ih je pripremio*], *otišao je iz luke*.
 when them-dat be-3sg prepare-ptc leave-ptc be-3sg from harbour
 “When he had made them ready, he left the harbour.” (SDII-46)

In (62), a phrasal adjunct and a fronted verb (finite *mogu* in (61a), participial *dogodi* in (61b)) precede the clitic:⁶

- (62) a. [*U njegovu motornom čamcu*] *mogu se odvesti izvan grada*.
 in his motor- boat can-3sg refl. travel-inf out of-town
 “In his motor boat, one can travel away from the town...” (SDII-26)
- b. [*Svaki dan*] *dogodi se najmanje jedna prometna nezgoda*.
 every day happen-ptc refl. at-least one traffic accident
 “Every day, at least one traffic accident took place.” (SDII-46)

The clitic in (63) is preceded by the object of the verb; but verb-fronting still takes place:⁷

- (63) [*Ono najvažnije*] *dobila sam od Ivanova brata*.
 this most-important receive-ptc be-3sg from Ivan’s brother
 “This essential thing I received from Ivan’s brother.”

(64) show examples where an overt subject precedes a verb fronted before a clitic. The negated finite verb has moved before the reflexive clitic *se* (64a); (64b) involves participle fronting before a clitic cluster containing the auxiliary clitic *je*:

- (64) a. [*Oni*] *ne vraćaju se u Zagreb*.
 they not return-3pl refl. to Z.
 “They aren’t returning to Zagreb.” (SDII-46)
- b. [*Skupljanje otpadaka*] *zaokupilo ga je*.
 gathering of-waste occupy-ptc him be-3sg
 “The collection of waste occupied him.” (SHKJ-478)

We stated above (§1.) that in finite declarative examples containing a clitic cluster preceded by an overt phrase, V-raising is impossible. In the light of examples like (61–64), this statement must be relativized. It seems that V-raising is optional in this situation. The examples with initial subject (64), initial object (63), and initial PP (62) all have variants with no V-raising. However for initial clausal adjuncts, only the option with V-raising is possible (cf. (61a)):

- (65) * [*Čim su ga organizirali*], *je bio zabranjen*

One possible answer to the question of why V-raising is triggered in such cases is suggested by the fact that, in (61), the clausal adjunct is separated from the remainder of the clause by an obligatory prosodic break (reflected by the comma in the orthography). It is plausible that this break reflects the presence of a prosodic boundary that creates a barrier for the encliticization process, meaning that the auxiliary-clitic in (65) is left without a host.

⁶(62b) also illustrates an independent phenomenon: where a clitic cluster contains both the reflexive *se* and the finite auxiliary *je* (“be-3sg”), the latter is “deleted”. Hence, a cluster superficially containing only the reflexive *se* may be preceded by a finite verb (62a: — no “*je*-deletion”); or a participle (62b: — “*je*-deletion”).

⁷It is not clear if the object has fronted to Spec,CP by the process of topicalization assumed for examples like (22b–c) in §1. above, or if this represents a case of Left Dislocation. Cf. footnote 8.

In the cases where encliticization is possible to the final word of the preceding phrase (62–64), it is unclear whether this approach can be maintained, since intuitions about the relative strength of the break separating “XP” and “CL” and “XP” and “V–CL” in the relevant example pairs are murky. Moreover, we suggest below that reference to a prosodic boundary is in any case insufficient to account for all instances of Last Resort V–fronting resulting in “X–V–CL” sequences.

There is a second possible line of explanation. Root clause “clitic–third” effects are not restricted to strings of the form “XP–V–CL”; examples can be found where two phrases precede the clitic. In (66a), modelled on (61a), the clitic auxiliary is preceded by a clausal adjunct and an overt subject (and there is no Last Resort V–fronting). In (66b), a phrasal adjunct and an overt subject precede the clitic auxiliary:

- (66) a. [*Čim su ga organizirali*], [*sastanak*] *je bio zabranjen*
 when be-3pl it organize-ptc meeting be-3sg be-ptc prohibited
 “As soon as they had organized it, the meeting had been prohibited.”
- b. [*U svakom slučaju*], [*Ivan*] *je pametan*.
 in every case I. be-3sg intelligent
 “In any case, Ivan is intelligent.”

If we stick to the assumption that the clitic is adjoined to C, then (66) shows that there is more than one phrasal position available to the left of C in root clauses.

This type of example is paralleled in V2–languages such as German. The finite verb is in C in (67), so at least two phrasal positions precede C:

- (67) a. *Wenn er kommt, dann gehe ich.*
 if hecomes then go I
- b. *Auf jeden Fall, ich werde da sein.*
 in any case I will there be

Assuming that Spec,CP is where the second phrase is located in (66) and (67), we need to identify the position of the initial phrase. Let us suppose that this position is external to CP (maybe adjoined to CP). For the sake of discussion, we call it the LD–position (Left Dislocation).

It is possible to generalize across the examples (61–64), by claiming that the initial phrase does not occupy Spec,CP, but the LD–position. Thus, the alternation between “XP–CL–V” and the “XP–V–CL” order corresponds to different structural positions of “XP”: in the former, XP is in Spec,CP, in the latter in the LD–position. This suggests that Last Resort V–Raising is syntactically conditioned. It is triggered if the prosodic requirements of the clitics are not satisfied by an overt element in a particular domain. That domain is a syntactic one: V–raising is triggered if phonological requirements are not satisfied “inside CP”, i.e. by material in Spec,CP or C⁰.

4.3 Coordination

The phenomenon of “clitic–third” in root clauses is more general. Strings of the type “X–V–CL–Y” occur also in clausal coordinations: “X” contains the initial conjunct and a conjunction, and “V–CL–Y” corresponds to the second conjunct, as in (68):

- (68) *Ivan je vidio auto i kupio je ga.*
 I. be-3sg see-ptc car and buy-ptc be-3sg it
 “Ivan saw the car and bought it.”

Since the conjunction is the final word in X, the question of whether V-raising is triggered in second conjuncts can be viewed in terms of whether the conjunction word itself is a potential (prosodic) host for clitics. Where the sequence CONJ-CL is possible, the conjunction is a possible host, and we expect Last Resort V-fronting to be blocked. Where V-raising is possible in second conjuncts, we expect the conjunction word not to be a possible host, so the sequence conj-clitic should be ungrammatical. Both these patterns are attested.

The conjunction *i* (“and”) is not a potential host for clitics — cf. (69), and V-raising is forced — only (68) is possible.

(69) * *Ivan je vidio auto i je ga kupio.*

The conjunction *a* (“and, but”) behaves like *i*. Either a fronted phrase or a fronted verb must intervene between the conjunction and clitics of the second conjunct:

- (70) a. *Ivan je vidio auto a Stanko je ga kupio.*
 I. be-3sg see-ptc car but S. be-3sg it buy-ptc
 “Ivan saw a car but Stanko bought it.”
- b. *Ivan je vidio auto a kupio je ga Stanko.*
- c. * *Ivan je vidio auto a je ga Stanko kupio.*
- d. * *Ivan je vidio auto a je ga kupio Stanko.*

With the conjunction *ili* (“or”), the reverse pattern is found. *ili* can carry clitics (71a). As predicted, this possibility blocks V-fronting, which is therefore impossible in a second conjunct following *ili* (71b):

- (71) a. *Ili ga je vidio, ili će ga vidjeti.*
 or it be-3sg see-ptc or will it see-inf
 “He either has seen it, or he will see it.”
- b. * ... *ili vidjeti će ga*

However, a third pattern is attested with the conjunction *ali* — “but”. We find examples of both types: “*ali* — V — CL” — (72a), and “*ali* — CL — ... V” (72b):

- (72) a. ... , *ali nadamo se da nije posljedni put.*
 but hope-1pl refl. that not-be-3sg last time
 “... but we hope that it is not the last time.” (SDII-33)
- b. *Helga je prilično dugo spavala, ali se nije naspavala.*
 H. be-3sg fairly long sleep-ptc but refl. not-be-3sg rested
 “Helga slept fairly long, but was not completely rested.” (SDII-33)

If *ali* is a potential host for the clitic, the example (72a) with V-raising to a C hosting clitics that is directly preceded by *ali* raises a problem for the Last Resort characterization of V-fronting.

5 Solution

5.1 The insufficiency of prosody alone

In the preceding discussion, we have identified three cases where Last Resort V-fronting operates in spite of the presence of overt material preceding the clitic, to yield “clitic third” orders:

- (73) a. Infinitives: N — V — CL ...
 b. Simple root clause: XP — V — CL ...
 c. Coordination: CONJ — V — CL ...

We have indicated two possible ways of approaching these cases: an account in terms of a prosodic break between X and CL that would act as a barrier to enclitization, and an account in terms of syntactic domains.

A prosody-based account is suggested by some examples of (73b); but seems insufficient to capture all cases under a reasonable notion of “prosodic boundary”. Moreover, infinitives and coordinations generally resist such an approach. There is no justification for claiming that nouns are (always) separated from the infinitives they govern by a prosodic boundary of any strength. In coordinations, the evidence even goes in the opposite direction: if anything, conjunction words are themselves proclitic on following material. Certainly, any sizeable prosodic boundary occurs to the left, rather than to the right of the conjunction word.

Of course, this does not mean that the T.–M.–based account of V–CL orders is false; only that it alone is insufficient to account for the facts summarized in (73). The account of V–fronting in terms of T.–M. would be inadequate if, for instance, T.–M. itself were counterexemplified.

So far, we have argued that T.–M. is true on the basis of the fact that clitics never occur in string-initial position. In fact, “string-initial position” is only a sub-case of the environments in which encliticization is blocked and clitics are predicted not to occur. Any position in the string immediately preceded by a strong prosodic boundary, should be barred to clitics — (74b) subsumes the string-initial case:

- (74) a. W / X CL Y
 b. * X / CL Y

As far as we have been able to discover, (74b) does not occur in Croatian.

Other “clitic second” languages differ from Croatian in this respect. We have already seen reasons to suppose that clitics in Czech do not have the same strict T.–M. property as those of Croatian. Toman (1993) also reports that examples of the form (74b) can be constructed for Czech. In (75), a topicalized phrase ends on a clitic, and the speakers have clear intuitions to the effect that the only possible prosodic structuring matches the syntactic structure. A break separates the constituent in Spec,CP from the remainder of the clause, thus intervening between the two clitics:

- (75) a. *Pomáhat **mu** by dnes stálo mnoho.*
 to-help him would-3sg today cost-ptc much
 b. *Poslouchat **ji** by **ji** asi nudilo.*
 to-listen her would-3sg her probably bore-ptc

- (76) a. [*Pomáhat mu*] / *by dnes stálo mnoho.*
 b. [*Poslouchat ji*] / *by ji asi nudilo.*

The corresponding examples in Croatian do not permit this situation to arise: (77a) is judged ill-formed. Either the clitic adjoined to the root C encliticizes to the clitics of the topic-phrase (77b), or V-raising is triggered — the latter being the preferred option:

- (77) a. * *Nada vidjeti ga / je bila velika.*
 hope see-inf him be-3sg be-ptc great
- b. ? *Nada vidjeti ga je / bila velika.*
- c. *Nada vidjeti ga / bila je velika.*

These data corroborate the conclusion that Czech clitics do not (all) have the T.–M. property we have identified for Croatian clitics.

In a model seeking to reduce clitic third effects induced by V-raising to prosody, the problem provided by (73) is one of undergeneration by the model. Given the characterization of V-fronting as a Last Resort operation, V-fronting that results in strings like (78) should be unnecessary, since encliticization to X is not blocked:

- (78) W / X V CL Y.

As such, relevant examples are predicted to be ungrammatical — violations of the Last Resort principle. If the characterization of V-raising as a strictly Last Resort operation is to be retained, there must be some further factor involved in determining V-raising in such cases.

5.2 Syntactic domains

In §4.2, we suggested a syntactic generalization that underlies all cases of V-fronting in root declaratives, including those of the form (78). Where X is external to CP, and neither Spec,CP nor C⁰ contain a potential prosodic host for clitics, we find V-fronting triggered by clitics adjoined to C. The generalization is (79):

- (79) V-raising is triggered if the prosodic subcategorization of CL is not satisfied within CP (CP = the CP to whose head C⁰ CL is adjoined).

If it is true that X in X–V–CL is invariably outside CP, then V-raising can be successfully characterized as a Last Resort operation with respect to (79). This seems to be the case. The clearest case is infinitives. The N-head governing an infinitive CP is undoubtedly outside CP; so clitics trigger V-fronting in the manner described. Regarding simple and coordinated root clauses, more needs to be said.

5.2.1 Simple root clauses

An initial phrase in a root declarative has two structural analyses: either it occupies the Spec,CP position or the CP-external LD-position. We may further assume that phrases that surface in Spec,CP got there by movement, so they form a chain with an IP-internal trace, while phrases in the LD-position are generated there directly, and are linked to an empty element in IP by \bar{A} -binding (cf. Cinque (1991)). These options then correlate with the options for Last-Resort V-fronting to the position between such a phrase and a clitic-cluster.

Phrases that precede verb-clitic combinations in root clause declaratives (examples (61–64) above) are all good candidates for phrases that are external to CP. In their counterparts without V-raising, the phrase can be analyzed as a Topic in Spec,CP.⁸ Where an initial phrase may occupy Spec,CP, but is prohibited from appearing in the LD-position on independent grounds, we expect to find that Last Resort V-raising is impossible. There are three such cases. V-fronting is absolutely impossible where a clitic cluster is preceded by one of the elements in (80):

⁸One problem case might be the fronted object in (63) above. Normally, Left-Dislocated objects are associated with an object clitic, i.e. the construction resembles “Clitic-Left-Dislocation” of Italian, while the object in (63) above is not associated with a clitic.

- (80) a. A “subextracted constituent”.
 b. A negative phrase.
 c. A *wh*-phrase.

These are illustrated in (81–83):

- (81) a. *Zeleno je kupio auto.*
 green be-3sg buy-ptc car
 “He bought a green car.”
 b. * *Zeleno kupio je auto.*
- (82) a. *U nikakvom slučaju bi rekli, da ...*
 in no case would say-ptc that ...
 “By no means would I say that ...”
 b. * *U nikakvom slučaju rekli bi, da ...*
- (83) a. *Koga je vidio?*
 who_{ACC} be-3sg see-ptc
 “Who did he see.”
 b. * *Koga vidio je?*

We assume these initial constituents can only be in Spec,CP. V-raising in the (b)-examples violates Last Resort.

Evidence from V2-languages and English support the claim that the types (83b–c) are not able to appear as an LD-element. In these languages, both cooccur with a fronted finite V in C, and must stand strictly adjacent to C. This is usually interpreted as indicating that initial NEG-P/WH-P must be in Spec,CP:

- (84) a. *Who did you see?*
 b. * *Who, you saw (him).*
 c. *In no case would I say that.*
 d. * *In no case, I would say that.*
- (85) a. *Wen hast du gesehen?*
 who have-2sg you see-ptc
 b. * *Wen, (den) hast du gesehen.*
 c. *Auf keinen Fall würde ich dies sagen.*
 in no case would-1sg I this say-inf
 d. * *Auf keinen Fall, ich würde dies sagen.*

The claim that (topicalized) subextracted constituents can only appear in Spec,-CP is harder to substantiate, given the typological rarity of this form of extraction. Subextraction is also found with *wh*-movement, also only possible to Spec,CP; and so the fact that subextraction in declaratives also blocks V-fronting, in contrast to

other initial phrases in root declaratives, supports the generalization. It may be that subextracted phrases are actually focussed, hence “operator-like”. This may then suggest a further contrast among ordinary initial phrases: if focussed, V-raising is blocked; if not, V-raising may be possible. This point awaits further investigation.

5.2.2 Coordinating conjunctions

The unmarked assumption concerning coordinate conjunctions like *and* that unite clausal conjuncts are external to CP. To account for (68–70), we propose to analyse *i* (“and”) and *a* (“and/but”) as elements that are generated external to the second conjunct. Maybe it is a head of a “conjunction phrase” (&P) as suggested by several authors recently:

$$(86) \quad \text{Ivan je vidio auto } [_{\&P} i [_{CP} \text{ kupio } \textbf{je ga}]] (= 68)$$

Since *i* is external to CP, the prosodic subcategorization of the clitics in the second conjunct remain unfulfilled inside CP, so V-raising is triggered. (86) may then be prosodically well-formed, but represents a violation of (79); (87) does not, we claim, have a possible syntactic derivation, since (79) forces V to raise in this case.

$$(87) \quad * \text{ Ivan je vidio auto } [_{\&P} i [_{CP} \textbf{je ga kupio}]] (= 69)$$

We suggest to treat *ili* (“or”) as an element that is generated in Spec,CP of the conjunct it introduces; so it may support the clitics within the CP. Hence, its presence in a conjunct will prevent the application of V-raising. This is sketched in (88) — (88b) is a simple Last Resort violation:

$$(88) \quad \text{a.} \quad \text{Ili } \textbf{ga je vidio}, [_{CP} \text{ ili } \textbf{će ga} [_{IP} \text{ viditi}]] (= 71)$$

$$\text{b.} \quad * \dots [_{CP} \text{ ili viditi } \textbf{će ga} [_{IP} \dots]]$$

Maybe the conjuncts in (88) are united in a conjunction phrase “&P” with a PF-zero head.⁹

Ali (“but”), we suggest is an element that may be introduced either within Spec,CP or outside CP (perhaps as head of &P). The apparent optionality of V-raising in conjuncts introduced by *ali* will thus reduce to these structural options for *ali*, as illustrated in (89):

$$(89) \quad \text{a.} \quad \dots, [_{\&P} \text{ ali } [_{CP} \text{ nadamo } \textbf{se} [_{IP} \dots \text{ da nije posljednji put}]]] (= 72)$$

$$\text{b.} \quad \dots, [_{CP} \text{ ali } \textbf{se} [_{IP} \text{ nije naspavala}]]$$

These proposals concerning different structural options for conjunct-introducing words in Croatian are not so ad hoc as they might at first appear.¹⁰ Similar (though not fully parallel) variation in the effects of corresponding elements can be observed in V2-languages. Generally, if an element “counts” for V2, in that the finite verb immediately follows it (and the clause is declarative), then we suggest that this element stands in Spec,CP. If Spec,CP is free to host a different phrase in the presence of a conjunction-introducer, then we claim that this element is generated outside CP (under &P). German *und* (“and”) never counts for V2 (78), so like Croatian *i* it is generated outside CP:

⁹Extra evidence for this proposal comes from the observation that strings like “*ili* XP cl ...” are impossible. A phrase inside CP cannot precede clitics, since the only available position, Spec,CP is occupied by *ili*.

¹⁰A different approach is taken by Zec & Inkelas (1990), who propose a phonological account of the different enclisis possibilities with conjunction words.

- (90) a. *Hans hat das Auto gesehen und [Maria hat es gekauft]*
 H. have-3sg the car see-ptc and M. have-3sg it buy-ptc
- b. **Hans hat das Auto gesehen, und [hat Maria es gekauft]*

While *oder* (“or”) does not count for V2, the “initial conjunction” *entweder* (“either”) — paired with *oder* generally does:

- (91) *Entweder hat er sie gesehen, oder er hat mit ihr telefoniert.*
 either has he her seen or he has with her phoned

Hence *entweder* stands in Spec,CP, like its cognate (also *ili*) in Croatian.

As is well known, *neither* and *nor*, the negated form of *either ... or*, trigger AUX-to-C in their respective conjuncts in English (92a), which suggests that they are “operators” in Spec,CP. They thus resemble their German cognates *weder ... noch*, which count for V2:

- (92) a. *Neither did he see her, nor did he telephone with her.*
- b. *Weder hat er sie gesehen, noch hat er mit ihr telefoniert.*

In German, two elements that correspond to *ali* (“but, however”) also differ in whether they may count for V2: *aber* (“but”) may not (93), while *jedoch* (“however”) may (94):

- (93) a. *Er hat sie nicht gesehen, aber er hat mit ihr telefoniert.*
 he have-3sg her not see-ptc, but he have-3sg with her phone-ptc
- b. **Er hat sie nicht gesehen, aber hat er mit ihr telefoniert.*
- (94) a. *Er hat sie nicht gesehen, jedoch er hat mit ihr telefoniert.*
- b. *Er hat sie nicht gesehen, jedoch hat er mit ihr telefoniert.*

While further investigation is necessary, such data do make plausible the proposal to reduce the variation among non-initial conjuncts in Croatian to structural differences among the conjunctions themselves.

5.3 GT, Move- α and Cyclicity

We have reviewed several arguments for supposing that the correct notion of the “domain” within which clitics trigger Last Resort V-fronting is a syntactic one. However, the imposition of a syntactic domain condition on the triggering of “Last Resort V-fronting” as in (79) looks suspiciously stipulative. There are two ways in which it might be derived from more general considerations.

One option involves the idea that the syntactic category CP always maps to a certain type of phonological domain, whose left boundary can then be declared a barrier to encliticization (cf. Ćavar & Wilder (1992)). The problems this approach raises lead us to reject it and consider alternatives.

The second option involves seeking to derive the “domain condition” on V-raising from more general properties of the syntactic computational system within which V-raising takes place. The idea we pursue is that the fact that prosodic properties of clitics in C trigger syntactic movement of the verb inside a local domain is to be interpreted as a cyclicity effect. This idea can be fleshed out in terms of the approach to the generation of syntactic structures of Chomsky (1992).

In the EST/LGB framework, the construction of a complete phrase-marker and insertion of all lexical items (= the creation of a D-structure representation of a sentence) is ordered prior to derivational movement operations. Move- α thus operates on complete representations in mapping D-structure to S-structure. This means that information about any phonological material preceding clitics in C is available at the point at which a decision is taken about whether or not to move a verb (“Last Resort Fronting”). So we cannot prevent preceding overt material outside CP from blocking V-raising while allowing preceding overt material inside CP to block it, without specific reference to CP.

In the MPLT-framework, projection from the lexicon (insertion), creation of simple subtrees, combination of subtrees, and (pre-Spell-Out) movement are all operations that go hand in hand in building up the PS-tree of the sentence.

Chomsky’s system incorporates a general requirement akin to (95):

- (95) Pre-Spell-Out operations are local, in the sense that an operation must apply as soon as its target is created.

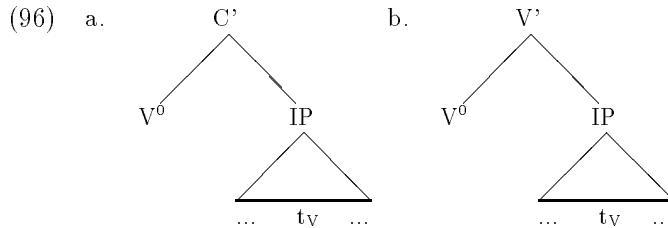
So a pre-Spell-Out operation of NP-movement, say, must apply as soon as its target (the specifier position of AGRP) is created. It may not be delayed until after the creation of superordinate structure (structure containing AGRP).

Reference to a general condition like (95) creates the possibility of deriving the syntactic domain condition on V-fronting from the locality of pre-Spell-Out operations. The decision about whether to raise a Verb to C in response to a “clitic” trigger will have to be taken before further information about the external environment of the clause becomes available. We suggest that this is the correct way of interpreting the obligatoriness of V-raising where the “trigger” is not independently satisfied in a local syntactic domain.

However, there are certain technical problems involved with the implementation of the idea. Chomsky excepted two types of movement from (95), which corresponds to his “extension” requirement on overt substitution operations. LF-movement must be exempted, as it takes place inside already extant trees. But adjunction operations are also exempted; and Last Resort V-raising must be considered an instance of head-adjunction in Chomsky’s model.

For pre-Spell-Out phrasal adjunction operations, the exemption is not trivial: if the phrase to be adjoined is contained within its target, strictly cyclic (= tree-extending) adjunction is possible. However, head-adjunction cannot be strictly cyclic (tree-extending), since the head to be adjoined can never be contained within its target (a superordinate head). V is not contained in C, but in the complement of C. Movement is a unary operation (operates over a single tree), so the root node of the tree containing the head to be moved (V) and the landing site β must minimally be \bar{C} .

Head movement by substitution can be tree-extending, but V-to-C movement cannot be a substitution operation, since the output tree would then either be \bar{C} (violating \bar{X} -theory) or \bar{V} (violating assumptions about the category of the clause):



Chomsky suggests then that pre-Spell-Out adjunction is free to apply at any point (is not subject to (95)). This has undesirable consequences for our attempt to reduce (79) to (95). In particular, it would be possible for the decision about Verb-raising to be delayed until information becomes available about whether a CP whose head contains (unsupported) clitics is embedded in a superordinate structure (containing a host for the clitics) by a subsequent operation of GT.

At the same time, we cannot stipulate that V-raising must apply as soon as its target is created (following adjunction of clitics to C inside \bar{C}), since this may permit a subsequent operation of movement to Spec,CP that creates CP out of \bar{C} .

Moreover, if clitic-adjunction to C is free to apply anywhere, then we cannot tie the trigger for V-raising to the absence of information about CP-external material, since clitic-adjunction may apply after a potential CP-external host has been introduced.

So we suggest embedding the following into Chomsky’s system:

- (97) Pre-Spell-Out (head-)adjunction to X is local, in that it must take place before XP is used in a subsequent operation of GT.

The principle of Last Resort should suffice to ensure the delaying of V-adjunction to C until all independently motivated operations in CP have taken place. These include adjunction of clitics, which creates the potential trigger for V-adjunction, and phrasal movement to Spec,CP, which blocks V-adjunction. So with respect to the C-level of a finite clause in Croatian, we obtain the following ordering on pre-Spell-Out operations:

- (98) a. Union of C and IP by GT / head-substitution (creates \bar{C} /CP).
 b. Obligatory phrasal movements (e.g. of a *wh*-phrase or Topic to Spec,CP that creates CP) and obligatory head-adjunctions (e.g. of clitics to C^0).
 c. Last Resort operations (last resort V-movement as head adjunction).
 d. Subsequent operation of GT (which creates another cycle).
 e. Spell-Out.

The result of adopting (97) is to make head-adjunction a “cyclic” operation. The Last Resort nature of V-to-C ensures that it is final in the “CP-cycle”.

6 Ellipsis and Last Resort Verb-movement

We have characterized Last Resort V-fronting as a syntactic operation that is triggered in response to a PF-well-formedness requirement. We have further argued that the syntactic determination of the domain in which the trigger operates has a natural interpretation in terms of the cyclic application of syntactic operations.

The fact that the domain of V-fronting is determined in the syntax might be argued to undermine the proposed characterization of the trigger in terms of phonological properties. However, as argued above, any alternative account of the trigger fails to generalize V-fronting to the independently supported T.-M.-property of clitics. In this section, we present a new, additional argument that the account of the trigger for V-fronting must refer to phonological properties.

In the theory defended here, which makes reference to phonological properties in determining V-movement, it is possible that the status of clitics and of V in the phonology may affect the pattern of V-movement. In particular, independent

ellipsis operations (phonological “deletion”) may cause clitics or other elements present in the syntactic representation of a clause to lack a representation in PF. Such operations apply in coordination structures (to be discussed directly). There are two cases in which predictions about Last Resort V-raising arise:

- Case (I): Suppose that a clitic is present in the syntactic representation but undergoes phonological “deletion”. The question arises of whether the clitic may trigger Last Resort V-fronting in this case? The theory defended here suggests that the answer should be no. Since the property triggering V-fronting is an aspect of the phonological representation of a clitic that needs to be interpreted, in cases where the phonological representation of the clitic is not present in PF, there is no “PF-violation” to be avoided by V-fronting. V-fronting is not required, so by Last Resort, not permitted.

- Case (II): Conversely, suppose that a clause contains a clitic not deleted in PF, and a non-clitic item X which is present in the syntax but undergoes phonological deletion:

⇒ (II-a) Suppose further that X occupies a position in which it would support a clitic, blocking Last Resort V-fronting, if it were not deleted. This X may be a phrase in Spec,CP. Can (deleted) X support the (non-deleted) clitic? Again, the present theory suggests a negative answer. An element lacking a PF-representation cannot provide prosodic material to support a clitic represented in PF. In this case, we might expect last resort V-fronting to take place where it is otherwise blocked (e.g. in a root *wh*-question).

⇒ (II-b) As a variant of (ii-a), suppose that X is a finite verb which undergoes phonological deletion. Can this verb undergo V-fronting to support a (non-deleted) clitic? It presumably cannot. In this case, we might expect an unusual situation to arise, namely one where a non-finite verb (non-deleted!) raises to support a clitic-cluster that does not contain a finite auxiliary.¹¹

Summarizing, our account predicts the following interactions of Last Resort, as it applies to phonologically sensitive V-fronting, and PF-ellipsis:

(99) Last Resort I (V-fronting fails to apply where the trigger is neutralized by ellipsis): Where a clitic has no PF-representation, V-fronting fails to be triggered.

Last Resort II (V-fronting applies where a blocking factor is neutralized by ellipsis):

- a. Where a phrase in Spec,CP has no PF-representation, clitics can trigger V-fronting.
- b. Where a higher V has no PF-representation, clitics can trigger fronting of a lower V.

As discussed below, Last Resort I is difficult to demonstrate. But both cases of Last Resort II are attested in coordination structures in Croatian. However, the interpretation of the data depends heavily on assumptions concerning the analysis of coordination and associated ellipsis phenomena. So a few preliminary remarks are in order before we present the data.

The type of ellipsis we discuss is commonly known as “forward conjunction reduction” (FCR) — i.e. not “backward deletion” / “Right Node Raising”. Constituents of a non-initial conjunct are “deleted” under “identity” with corresponding

¹¹This situation never arises normally, since a non-clitic finite verb is always “closer” to the clitic cluster; raising of the finite verb to C will represent a “shorter” movement, blocking the option of “longer” movement of a non-finite form. Conversely, where the finite verb is itself a clitic, movement of the next non-finite verb represents the “shortest” available option.

constituents of the initial conjunct. Two cases of FCR are to be distinguished, illustrated in (100) and (101).

In (100), the deleted constituent (a finite verb) is non-peripheral in the second conjunct:

- (100) a. *You drink wine and John beer.*
 b. [*You drink wine*] and [*John* _ _ *beer*]
 → PF-ellipsis of finite V: “drinks”

This is a standard Gapping construction.

In (101), assuming that the second conjunct is a full clause, then the deleted constituent (a *wh*-phrase) is left-peripheral in that clause.

- (101) a. *What did John buy and will you drink?*
 b. [*what did John buy*] and [_ _ *will you drink*]
 → PF-ellipsis of *wh*-P: “what”

Call this Left-Peripheral Deletion (LPD).

The analysis of Gapping as PF-ellipsis in a full clausal conjunct is relatively uncontroversial. Not so, the analysis of (101a) in terms of (101b). It is customary to treat “LPD”-data like in terms of “smaller” conjuncts — in this case, C’ and C’ — with the “shared constituent” outside of the domain of coordination. (101a) then represents a case of Across-the-board extraction out of both conjuncts, rather than PF-ellipsis in the non-initial conjunct:

- (102) *What* [[*did John buy t*] and [*will you drink t*]]

Our arguments for (99) rest on the treatment of LPD as “ellipsis” in full clausal conjuncts. Although some of the examples we present are consistent with analysis in terms of “small-conjuncts” and ATB-extraction, if such an analysis is adopted, the arguments for (I) based on these examples does not go through. But this is a question that ultimately needs to be decided on the basis of a general theory of coordination.¹² Where our arguments are based not on LPD-type ellipsis, but on Gapping, we feel we are on firmer ground in positing the full clausal conjuncts necessary for the argument to go through.

In the second of two conjoined finite clauses, Gapping can affect the finite verb in the second conjunct, leaving subject and object as remnants, in Croatian just as in English:

- (103) *Ja pijem pivo a ti _ vino.*
 I drink-1sg beer and you wine
 “I drink beer and you wine.”

Gapping can also affect a finite auxiliary verb (clitic form), leaving subject, participle and object in the second conjunct:

- (104) a. *Ivan je kupio novo auto i Drago ga razbio.*
 I. be-3sg buy-ptc new car and D. it wreck-ptc
 “Ivan bought a new car and Drago wrecked it.”
 b. [CP *Ivan* C + **je** [IP *kupio novo auto*] i [CP *Drago* C + **ga** (**je**)
 [IP *razbio*]

¹²See Wilder (in progress) for arguments against the “small conjunct-plus-ATB” approach to LPD-phenomena.

In the second conjunct of (104a), the subject is followed by a pronominal clitic. In our analysis, this clitic is in C^0 , the subject topicalized, in Spec,CP. This example is therefore an instance of conjoined CPs.

In addition to the finite auxiliary, the subject of the second conjunct can be dropped under identity with the subject of the first (105). Assuming the second conjunct to be CP (105b), this might be analysed as subject deletion (LPD): or it may be a simple case of *pro-drop*, the *pro*-subject coreferent with *Ivan*:

- (105) a. *Ivan je otišao i kupio auto*
 I. be-3sg go-away-ptc and buy-ptc car
 “Ivan went out and bought a car.”
- b. ... *i* [_{CP} *kupio (je)* [_{IP} ... *auto*]]
- c. [_{VP} [_{VP} *otišao*] *i* [_{VP} *kupio auto*]]

However, this example might equally well be analyzed in terms of “small conjuncts” (VP-&-VP) embedded in a single CP (105c).

If the subject and the finite auxiliary have dropped in the second conjunct but a pronominal clitic is present, then the participle precedes the clitic:

- (106) a. *Ivan je kupio vina i pio ga.*
 I. be-3sg buy-ptc wine and drink-ptc it
 “Ivan bought wine and drank it.”
- b. *Ja sam kupio vina i pio ga.*
 I be-1sg buy-ptc wine and drink-ptc it
 “I bought wine and drank it.”

This type of example provides the basis for our argumentation in this section.

It might be thought that these examples are simply VP-coordinations, with the substructure (107a) embedded in a single CP:

- (107) a. [_{CP} ... SU ... [_{VP} [_{VP} *kupio vina*] *i* [_{VP} *pio ga*]] ...]
- b. [_{CP} ... SU ... [_{VP} [_{VP} *kupio vina*]] *i* [[_{CP} *pio ga (je)* (SU) ... t_V]

Under our analysis this cannot be true. As we have demonstrated, pronominal clitics (C-clitics) are only licensed when they are right adjoined to a C^0 . So we are forced to treat this example as root-CP-coordination, with gapping (deletion) of the finite auxiliary, and a null subject (deleted, or *pro*) as in (107b). The participle has undergone Last Resort Fronting, so is adjoined to C^0 .

The conjunction *i* cannot act as support for clitics, as we have seen:

- (108) * *Ivan je kupio vina i ga pio.*

So V-fronting is the only possibility to support the clitic and rescue the second CP in (106). This is interesting, since in this case, a non-finite verb supports a clitic cluster not containing finite the auxiliary. (This is not possible where the finite verb is present but not a member of the clitic cluster, since a non-clitic finite verb would raise itself in that case, preempting raising of the participle.)

Independent evidence against a VP&VP-analysis of (106) is provided by consideration of subordinate environments. If (107a) were correct, we should expect the VP&VP-substructure to occur also in embedded clauses. But relevant examples are deviant. (109a) contrasts with the acceptable (109b), in which the second conjunct has no clitic, so allowing a VP&VP analysis (cf. (105c):

- (109) a. * ... , *da je Ivan kupio roman i čitao ga*
 that be-3sg I. buy-ptc novel and read-ptc it
- b. ... , *da je Ivan pio kavu i čitao roman*
 that be-3sg I. drink-ptc coffee and read-ptc novel
 “...that Ivan drank coffee and read a novel”

Why is (109a) bad?

Our guiding assumption is that the pronominal clitic is right-adjoined to C. This forces a structural analysis of the second conjunct as a projection of C. C is generally never “PF-empty” in non-conjoined subordinate declaratives. So where a subordinate declarative CP appears as a second conjunct, the complementizer *da* is generated. Since a clitic appears in the second conjunct of (109a), the presence of the overt complementizer is forced. (109a) is illformed since the second conjunct contains C (\rightarrow clitic), but no complementizer (\rightarrow subordinate).¹³

In the well-formed variant of (109a), the presence of a lexical complementizer blocks V-fronting:

- (110) ... , *da je Ivan kupio roman i da je ga čitao*

Notice also that (110) contains the clitic auxiliary *je*, which cannot be dropped (gapped) in this case, in contrast to root clause conjuncts like (106):

- (111) * ... , *da je Ivan kupio roman i da ga čitao*

This is due to the general fact that finite verbs cannot undergo gapping in conjuncts that contain a lexical complementizer. We illustrate this with English examples:

- (112) a. ... *that Mary is intelligent and [John __ stupid]*
- b. * ... *that Mary is intelligent and [that John __ stupid]*
- c. ... *that Mary is intelligent and [that John is stupid]*

Root clauses do not contain a lexical complementizer, so gapping of the finite auxiliary is possible in (106).

So we conclude that the CP-&-CP analysis of (106) is correct. The assumption that the second conjunct of example (106) is a C-projection allows the conclusion that the finite auxiliary is present in the syntactic representation of the second conjunct. This would not be the case if we assumed a VP-&-VP coordination structure, under which there would only be one auxiliary, external to both conjuncts. Further examples of second conjuncts lacking an overt finite verb, but involving participle fronting across a pronominal clitic, must therefore be analyzed as clausal (CP) conjuncts where FCR interacts with Last Resort Verb fronting. Examples of this type, we claim, show that FCR (Gapping and LPD) interacts with Last Resort V-Movement, in that it can trigger movements not licensed in structures without “deletion”.

It could be the case that what triggers verb-fronting in (106) is not the pronominal clitic alone, but the (gapped) auxiliary clitic. We claim this is not so (= Last Resort I). The question is also raised by example (113b): here, the clitic auxiliary has gapped, and no pronominal clitic is present — and the participle is initial in its conjunct:

¹³If (109b) is also a case of CP-coordination, in which C has undergone ellipsis, then the lexical complementizer *da* can be a target of ellipsis. To account for (109a), we need to add the assumption that if a lexical C is a target of ellipsis, adjoined clitics cannot be stranded.

- (113) a. *Spremio je se i otišao je u kino.*
 prepare-ptc be-3sg refl. and leave-ptc be-3sg in cinema
 “He got himself ready and went out to the cinema.”
- b. *Spremio je se spremio i otišao u kino.*

It is not clear whether the participle has raised to support the gapped auxiliary-clitic, or whether it remains “downstairs” in VP:

- (114) a. *Ivan je se spremio i otišao u kino.*
- b. ... *i* [_{CP} C⁰ + (*je*) ... [_{VP} *otišao u kino*]]
- c. * ... *i* [_{CP} *otišao* + (*je*) ... [_{VP} *t u kino*]]

Our theory predicts that V cannot raise (Last Resort) to C, if a clitic in C is deleted. This means that (114b) is the correct analysis: the participle does not raise to C to support a deleted clitic-auxiliary.

This is very difficult to show. The relatively free constituent order in Croatian IP (to the right of the clitic-position), which means that it is impossible to show that an initial verb is in C or lower in the structure, in the absence of a clitic. We have been unable to find conclusive arguments on this point.¹⁴ The best we can do is show that V does not have to raise if a clitic is deleted. A relevant example is the conjoined *wh*-question (115):

- (115) *Šta je Senka želila a Drago kupio?*
 what be-3sg S. want-ptc and D. buy-ptc
 “What did Senka want and Drago buy.”

A “standard” analysis of (115) is as IP-&-IP-coordination, with ATB extraction of the auxiliary and *wh*-phrase. Analyzed in terms of CP-conjuncts, *wh*-phrase and auxiliary clitic are both present in the second conjunct, but are deleted via LPD:

- (116) [*Šta je Senka želila t*] a [(*šta*) (*je*) *Drago kupio t*]

The fact that the participle follows the overt subject shows that it has not undergone Last Resort Fronting. We tentatively conclude that a deleted clitic does not trigger V-fronting.¹⁵

However, to make this argument go through, we also need to show that the deleted *wh*-phrase does not block Last Resort V-fronting in this case (recall that an overt *wh*-phrase blocks V-raising). To show this, we need to consider examples in which a second conjunct contains a deleted *wh*-phrase and a non-deleted clitic. Our theory predicts that in this case, the non-deleted clitic, needing a host in PF,

¹⁴A conclusive case would involve some element X that may follow the verb only if the verb has undergone Last Resort fronting. Apart from clitics themselves, we have been unable to find such an X. Subjects, for instance, may appear in postverbal (post-participle) position.

¹⁵Comparison with i. shows that the deleted clitic auxiliary is certainly not supported by the overt subject in (16):

- i. * *Šta je Senka želila a Drago je kupio?*
- ii. * ... a [*šta Drago je kupio t*]

Here, the analysis of the second conjunct as a CP with a *wh*-phrase (deleted) in Spec,CP forces the subject to be inside IP, meaning that conditions on clitic placement are not respected. The (non-deleted) clitic auxiliary follows the subject and so is not adjoined to C.

will trigger V-fronting (= Last Resort IIa). The following example bears out the prediction:¹⁶

- (117) ? *Šta je Ivan kupio i ukradio mu Drago?*
 what be-3sg I. buy-ptc and steel-ptc him Drago
 “What did Ivan buy and Drago steal from him?”

Under the CP-conjunct analysis, the second conjunct of (117) contains a deleted *wh*-phrase and deleted finite auxiliary:

- (118) [CP *Šta je* [IP *Ivan kupio*]] i [CP (*šta*) **mu** (**je**) [IP *Drago ukradio t*]]

The V-clitic order shows that V-fronting to C can occur in a *wh*-question, where the *wh*-phrase in Spec,CP is phonologically zero. This is a pattern definitely never attested where the *wh*-phrase is overt (cf. §5.2.1 above).

That V-raising is the only option in (117) is shown by comparing it with (119):

- (119) a. **Šta je Ivan kupio i mu Drago ukradio?*
 b. **Šta je Ivan kupio i Drago mu ukradio?*
 c. *... i [CP (*šta*) (**je**) [IP *Drago mu ukradio t*]]

In (119a), the inability of the conjunction *i* (“and”) to carry a clitic is once more manifested. The ungrammaticality of (119b) can be traced back to illegitimate clitic placement in the syntax (119c): the presence of a *wh*-phrase, which must be in Spec,CP, forces the subject to be IP-internal, so it may not precede the clitic, which must be adjoined to C.

So the evidence supports the claim that phonological properties are crucial in determining Last Resort V-fronting. The data are consistent with the claim (Last Resort I) that a deleted clitic does not trigger Last Resort verb-raising; and support the claim (Last Resort IIa) that a deleted phrase cannot support a non-deleted clitic, leading to the triggering of V-fronting, as in (117).

Finally, consider the situation where deletion targets a non-clitic verb, one that would undergo Last Resort V-fronting itself, if not deleted. Our account makes two predictions for this case. Firstly, a verb that is gapped cannot satisfy the prosodic subcategorization of clitics. So relevant examples will be ungrammatical. Secondly, grammatical versions of such examples may involve Last Resort raising of a more deeply embedded verb. This is Case (IIb).

Usually, a participle can only undergo Last Resort fronting if the finite verb of the clause is itself a clitic. Where the finite verb is not a clitic, the finite verb itself is able to move to C and support the clitics. Since the finite verb is closer to the clitics than the participle, raising of the finite verb represents a shorter derivation than raising of the participle. Last Resort (the “shortest derivation” requirement) dictates that the finite verb move in this case, not the participle.

However, full (non-clitic) forms of the finite auxiliary may undergo gapping. Where this happens, and the second conjunct contains pronominal clitics, the participle can undergo Last Resort fronting. This is illustrated in (120) for the “emphatic assertive” form of auxiliary *be* (which is used in contexts parallel to those where emphatic *do*-support is found in English — see Ćavar & Wilder (1992) for discussion):

¹⁶Informants judge this type of example as marginal, but there is a marked contrast with the ungrammaticality of (120). It seems speakers generally prefer to avoid structures of this type altogether, choosing some completely different way of expressing the intended content. Maybe there is some processing difficulty due to the V-clitic order creating some expectation of a declarative second conjunct.

- (120) a. * *Jesam kupio vina i ga pio.*
 BE-1sg buy-ptc wine and it drink-ptc
- b. *Jesam kupio vina i pio ga .*
 “I did buy wine and drink it.”

We have already argued that the verb and clitic are in C in the second conjunct in examples like (120b). We further propose that the gapped verb in the second conjunct is the full form *jesam*, and not the clitic form (*sam*). This is supported by considering the interpretation of the example. The verb *jesam* imposes “emphasis” on the content of both conjuncts, just as emphatic *do* does in the English translation:

- (121) *I did buy wine and drink it.*

The usual way of thinking about examples like (121) is in terms of “small conjuncts” (VP-coordination), so the fact that emphatic *do* has scope over both conjuncts is unsurprising. However, VP-coordination is excluded for the Croatian (120b). If however, we assume that the syntactic representation of the second conjunct contains a “gapped” full auxiliary *jesam*, then the fact that both conjuncts are interpreted as being in the scope of emphatic assertion is comprehensible. If we were to assume that the clitic form is what is gapped in the second conjunct of (120b), a reading like the English (122) might be expected, where content of the second conjunct is not in the scope of “emphasis”:

- (122) *I did buy wine, and drank it.*

This is the reading associated with (123), where the second conjunct contains an overt clitic auxiliary:

- (123) *Jesam kupio vina i pio sam ga.*

So, given that *jesam* is present in the syntactic representation of the second conjunct of (121b), we see that a non-clitic verb lacking PF content does not prevent Last Resort raising of participle, in line with our prediction. Compare the representations (124):

- (124) a. * *Pio ga jesam* / * *Pio jesam ga*
- b. ... *pio (jesam) ga*

It is plausible that gapped *jesam* adjoins to C in (124b) before the participle does — perhaps this is the only possibility for avoiding a minimality (Head Movement Constraint) violation.

Similar examples exist in which the gapped verb is the negated auxiliary (also a full form):

- (125) a. * *Ivan nije kupio novo auto i ga razbio.*
 I. not-be-3sg buy-ptc new car and it wreck-ptc
- b. *Ivan nije kupio novo auto i razbio ga.*
 “Ivan didn’t buy a new car and wreck it.”

Again, the interpretation suggests *nije* is what is gapped in (126b), and not the neutral assertive clitic-auxiliary *je*. Both conjuncts are interpreted as being in the scope of negation. The reading can be paraphrased as: “it is not true that Ivan bought a new car and wrecked it”. This contrasts with the interpretation of (126), where the second conjunct contains an overt (non-negated) clitic auxiliary:

- (126) *Ivan nije kupio novo auto i razbio je ga.*

This example has a somewhat absurd interpretation: approximately “Ivan didn’t buy a new car, and wrecked it” — absurd, since the pronoun is interpreted as coreferent with the direct object of the first conjunct, while the existence of the referent of the latter has been denied. In other words, the object of the first conjunct is interpreted inside the scope of negation, while the second conjunct is outside.

A third case of this type involves gapping of a participial auxiliary together with the finite auxiliary, in the compound past perfect (pluperfect) tense. In this periphrastic tense construction, the participle form of the auxiliary is closer to the clitics in C than the main verb participle. So where the finite auxiliary is a clitic, the auxiliary–participle raises to support the clitics, blocking longer derivations (127c–d) involving main–verb raising (cf. Čavar & Wilder (1992)):

- (127) a. *Ivan je ga bio razbio.*
 I. be-3sg it be-ptc ruin-ptc
 “Ivan had wrecked it.”
- b. *Bio ga je razbio.*
 → AUX-participle has raised
- c. **Razbio ga je bio.*
 → main verb participle has raised
- d. **Razbio bio ga je.*
 → both AUX- and main verb participles have raised

However, where the participial auxiliary is gapped together with the finite auxiliary (128b), then the main verb participle raises to support clitics:

- (128) a. *Ivan je bio kupio auto i bio ga je razbio.*
 I. be-3sg be-ptc buy-ptc car and be-ptc it be-3sg wreck-ptc
 “Ivan had bought a car and wrecked it.”
- b. *Ivan je bio kupio auto i razbio ga.*
 I. be-3sg be-ptc buy-ptc car and wreck-ptc it
- c. ... [CP *razbio (bio) ga (je)* [IP ...]]

Here again, the interpretation is quite clear: the second conjunct is interpreted in the past perfect tense (like the first conjunct), and not as a simple past. So we are justified in positing a gapped auxiliary participle. The second conjunct of (128b), with the syntactic representation (128c), thus contrasts with (127d), although they instantiate the same V-movement patterns. Once more, we see the effects of the sensitivity of Last Resort V-fronting to phonological properties.

These conclusions concerning the interaction of Gapping and Last Resort V-fronting thus provide further support for the analysis in terms of phonological triggering of a syntactic movement operation.

Appendix

Types of clitics in Croatian

Paradigm for accusative and dative pronouns

M = Masc./Neuter; C-CL = 2nd position clitic; P-CL = PP-internal clitic pronoun (ACC, 1,2,3 Sing only); monosyllabic full pronouns (ACC) have long vowels ()

			ACC			DAT		
NUM	PERS	GEN	FULL	P-Cl	C-Cl	FULL	P-Cl	C-Cl
SG	1	M	mene		me	meni	–	mi
	2		tebe		te	tebi	–	ti
	3		njega	nj	ga	njemu	–	mu
		F	njû	nju	je, ju	njoj	–	joj
PL	1		nâs	–	nas	nama	–	nam
	2		vâs	–	vas	vama	–	vam
	3		njih	–	ih	njima	–	im
refl.			sebe		se	sebi	–	si

Enclitic finite auxiliary verbs

Paradigm for *be* (perfect / copula) and *want* (future); enclitic forms = 2nd position clitics

		BE			WANT		
		present			future-AUX		
NUM	PERS	pos	neg	encl.	pos	neg	encl.
SG	1	jesam	nisam	sam	hoću	neću	ću
	2	jesi	nisi	si	hoćeš	nećeš	ćeš
	3	jê	nije	je	hoće	neće	će
PL	1	jesmo	nismo	smo	hoćemo	nećemo	ćemo
	2	jeste	niste	ste	hoćete	nećete	ćete
	3	jesu	nisu	su	hoćê	nećê	ćê

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Damir Ćavar
Institut für Linguistik
Universität Potsdam
Postfach 60 15 53
D – 14415 Potsdam
cavar@hp.rz.uni-potsdam.de

Chris Wilder
Max-Planck-Gesellschaft
Arbeitsgruppe Strukturelle Grammatik
Jägerstr. 10–11
D – 10117 Berlin
chriss@skyline.asg.ag-berlin.mpg.de