BIASED WH-INTERROGATIVES

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abstract. This paper is a cross-grammatical investigation into Rhetorical Questions (rq}s), more specifically, negatively biased wh-interrogatives in Ser-Bo-Croatian. The rq}s under discussion express negative factivity and do not pose answerhood resolution conditions. Previous accounts of cross-linguistically comparable expressions suppose Focus association, via an even-like associate, which I confirm for Ser-Bo-Croatian. Several results are achieved: a syntactic analysis is argued for and mapped onto a compositional semantic/pragmatic analysis that derives the the relevant meanings. A prosodic study is reported which shows that focus associating wh-pronouns in rq}s are significantly different. This difference is programmatically accounted for by reformulating the assumption that wh-terms have no ordinary semantic value as they demonstrably associate with Focus, as per syntactic, prosodic, and semantic/pragmatic evidence.

1 introduction

Given that rhetorical questions (rq}s) are not truth-conditional, yet express less inquisitive epistemic perspectives, how can the non-canonicity of questions, viz. rhetorical interrogatives, be given a unified treatment within a compositional framework? This paper is a cross-grammatical investigation into rq}s, more specifically, negatively biased wh-interrogatives in Ser-Bo-Croatian. The rq}s under discussion express negative factivity and do not pose answerhood resolution conditions. Previous accounts of cross-linguistically comparable expressions suppose Focus association, via an even-like associate, which I confirm for Ser-Bo-Croatian. Several results are achieved: a syntactic analysis is argued for and mapped onto a compositional semantic/pragmatic analysis that derives the the relevant meanings. A prosodic study is reported which shows that focus associating wh-pronouns in rq}s are significantly different. This difference is programmatically accounted for by reformulating the assumption that wh-terms have no ordinary semantic value as they demonstrably associate with Focus, as per syntactic, prosodic, and semantic/pragmatic evidence.

The analysis rests on the empirical observation that q(uestion) particles may optionally co-occur in wh-qs, in which case they bear the interpretational signature of negative emotivity and rhetoricity. The core empirical facts are of the following kind, to which I will refer as wh-li constructions, which I also dub ‘wtf qs(expressions).

1 I use the term Ser-Bo-Croatian to refer to the South Slavonic language spoken in Serbia, Bosnia, Croatia, and Montenegro, among others.
SerBo-Croatian \((1)\), like most modern Indo-European languages, obey the ‘Doubly filled comp’ filter \(\text{dfcf}\). However, the violation of DFCF may obtain: in such cases, the construction yields a rhetorical question, as shown in \((1)\).

Similarly, and by cross-linguistic contrast, Chimane (ex. \(2\); isolate, Bolivia; Sandy Ritchie, pers. comm. and his own fieldwork) grammar obligates the \(\text{dfcf}\) to be doubly filled \(\(2\). Rhetoricity, however, may still obtain when the appropriate rhetorical interrogative particle is employed.

\[\begin{align*}
(2) & \quad \text{a. STANDARD } \text{wh}-\text{QUESTION} \\
& \quad \text{Jun’ (’buty) ji-yi-’} \\
& \quad \text{how } Q. \text{STND happen-CL-F.SUB} \\
& \quad \text{‘What is happening?’}
\end{align*}\]

\[\begin{align*}
& \quad \text{b. RHETORICAL } \text{wh}-\text{QUESTION} \\
& \quad \text{Jun’ (’dash) ji-yi-’} \\
& \quad \text{how } Q. \text{RHET happen-CL-F.SUB} \\
& \quad \text{‘What \text{on earth} is happening?’}
\end{align*}\]

This paper investigates the nature of \(\text{rq}\)s in Ser-Bo-Croatian with regard to their syntactic, prosodic, and semantic/pragmatic properties.

If \(\text{wh}\)-pronouns in questions are inherently focused, or focus-associating, as argued for by many \(\text{(Kotek 2014, and those cited therein)}\), then they should exhibit uniform prosodic and semantic-pragmatic behaviour. More specifically, \(\text{wh}\)-phrases under ‘additional’ focus, if they are already inherently focused/focus-associating, is unexpected. I analyse a particular interrogative construction in Ser-Bo-Croatian which shows that \(\text{wh}\)-phrases are pronounced differently depending on whether they are interpreted as featuring in genuine \(\text{wh}\)-interrogatives or whether they are part of rhetorical and negatively biased \(\text{wh}\)-questions. This allows us to capture prosodic properties of Focus-association with the semantic/pragmatics of negative bias via Focus. Syntactically, genuine question obey the \(\text{dfcf}\) while negatively biased \(\text{rq}\)s do not. I explain this fact, along with the prosodic/semantic-pragmatic facts, by analysing true/standard \(\text{wh}\)-questions as involving ‘true’ \(\text{wh}\)-movement to Spec(ForceP). Conversely, rhetorical \(\text{wh}\)-questions show that the relevant landing site (final or non-final, in line with \(\text{Bošković 2002}\) is located in Spec(FocP), which is responsible for the interpretational as well as the prosodic facts, unlike Spec(ForceP).

**Plan & structure of the paper** In \(\text{§2}\), I first introduce the various types of questions in Ser-Bo-Croatian, including the central \(\text{rq/wtf}\) construction. I provide an empirically motivated syntactic analysis \(\text{rq/wtf}\) constructions, along with their preliminary semantic features. I buttress the analysis with results from a prosodic experiment. \(\text{§3}\) provides a detailed semantic/pragmatic analysis.
2 ENCODING (AND DISENTANGLING NON/STANDARD)
WH-INTERROGATIVES IN SER-BO-CROATIAN

There are several ways of asking a question in Ser-Bo-Croatian. To ask a standard (non-echo) wh-question (3), A-movement to the clausal edge is required (I address what exactly probes this movement below).

(3) Ko te vidi?
Who you,acc sees
‘Who sees you?’

To ask a polar question (4), seemingly no movement is necessary: the interrogative C head is given overt phonological value as realises as the interrogative particle li. However, since li is a ‘Wackernagel element’, seemingly requiring placement in the second-position, an additional movement (of generally minimal verbal category) is required to satisfy this requirement.

(4) Vidi li te?
sees q you,acc
‘Does (s)he sees you?’

An echo-question is an in-situ variant of the wh-question formation:

(5) Vidi te ko?
sees you,acc who
‘You’re seen by who?’

The two standard questions both require pronounced material in the C-system: either the wh-phrase or the interrogative C head, presumably in compliance with the Doubly Filled comp Filter (dfcf; Chomsky and Lasnik 1977; Riemsdijk and Williams 1986). However, dfcf may be violated and when it is, the construction is interpreted as a a negative emotive factive, with an interpretation that is on a par with wh- on earth/in hell/the fuck rhetorical question.

(6) Ko li te vidi?!
who q you,acc sees
‘Who on earth sees you?’

<table>
<thead>
<tr>
<th></th>
<th>wh-ex-situ in Spec(CP)</th>
<th>phonological index on C^0_{[iq]}</th>
<th>dfcf violation</th>
</tr>
</thead>
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<tr>
<td>wh-Qs</td>
<td>+</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>polar Qs</td>
<td>–</td>
<td>+</td>
<td>–</td>
</tr>
<tr>
<td>echo Qs</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>wtf Qs</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 1: Some structural diagnostics for the types of interrogative constructions in Ser-Bo-Croatian.

In Tab. 1, a simplex yet exhaustive structural parametrisation of the interrogative typology in Ser-Bo-Croatian is given. In the following three subsections, the wtf construction is introduced in syntactic (§2.1), semantic (§2.2), and prosodic (§2.3) terms.
2.1 Syntax

The particle *li* is claimed to structurally originate in the interrogative Force minimal category (assuming clausal micro-structure in line with Rizzi (1997), where its interrogative meaning presumably originates, based on clitic-configurational considerations alone. The clitic ordering (‘⪧’ signalling linear order) in Serbo-Croatian is strictly dictated and confined to the C-system (as I briefly argue below):

\( Q \gg \text{AUX}[-3.\text{SG}]_\phi \gg \text{DAT}_\phi \gg \text{ACC}_\phi \gg \text{GEN}_\phi \gg \text{AUX}[+3.\text{SG}]_\phi \)

Assuming pronominal clitics (or \(\phi\)-bearing elements) originate within the thematic nucleus of the clause, \(vP\), but target clause-level heads via incorporation (clitics being ‘defective’ goals, following Roberts (2010)), then the structurally most economical landing site is the lowest phasal edge from which the clitic goal may be targeted by an Agree operation: i.e., \(\text{Fin}^{\text{min}}\). Fin-to-Force movement thus derives the correct configuration in line with the Strict Cycle and without breaching, or relaxing, any other structure-building principles (such as the PIC of Chomsky (2001 et seq.). One consequence of the Fin-to-Force movement concerns the derivational origins of interrogative *li* (sitting in \(\text{Force}^{\text{min}}\)). If *li* is first-merged in \(\text{Force}^{\text{min}}\), then the configurational sequence in (7) does not obtain given some basic assumptions I am making (say, incorporation/movement of the maximal category as left adjunction to the Force-probe). I adopt Roberts’s (2012) view that *li* is first-merged in \(\text{Focus}^{\text{min}}\) and raises independently of the clitic cluster (in \(\text{Fin}^{\text{min}}\)) to \(\text{Force}^{\text{min}}\). The resulting structure of the clausal edge is the thus the following:

\[ (8) \]

According to this view, therefore, *li* originates in the Focus field and incorporates into interrogative Force. This, however, makes an independent prediction that *li*, by virtue of its first-merge position, has interpretational

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2 See Roberts (2010: 394ff.:fn. 9, 10) for specific details. For general arguments and wider theoretical context, see also Roberts (2010); Mitrović (2014); Mitrović (2017b), int. al. Independently, the relation between, and eventual grammaticalisation of, Focus and Force can be substantiated diachronically; see Mitrović (2015) for diachronic evidence from Japonic.
affinity with Focus. I lay out arguments for there being a non-interrogative meanings associated with li, which I understand as indicating a non-interrogative—structural, and thus interpretational—origin of li. The first argument concerns the doubling of the li particle (accepted and produced by some Bosnian speakers). In spontaneous elicitation, the li li sequence also truncates to lli for most speakers. The doubling of the li particle motivates the Focus analysis shown in (8).

(9) Ko li(l(i) je došao?
who Q Q AUX.3.SG came.PTC.M.SG
‘Who on earth/the fuck came?!’

The evidence in (9) is predicted by the Focus analysis of li, i.e. the derivational account which supposes a first-merger of the li-exponent in Focus\textsubscript{min}. I do not notate the doubling li explicitly when presenting the data as not all speakers allow the doubling, presumably for haplology constraints. However, I take the fact that doubling is possible for some speakers as evidence for the internal structure of the left edge in the C-system containing (at least) two derivationally and interpretationally relevant projections: Force\textsubscript{P}, encoding interrogativity, and Foc\textsubscript{P}, encoding association with Focus. Prosodic and semantic/pragmatic arguments are presented for the latter. In line with (8) and the doubling data in (9), I thus motivate the structure for the left edge involved in rqs as being the following, where the (previously motivated) incorporation of Fin\textsubscript{min}, to which the pronominal clitics clusters, is ignored for simplicity and convenience.

(10)

While Bošković (2002) remains agnostic whether wh-focus-fronting requires additional successive movement of the wh-phrase to Spec(Force\textsubscript{P}), the analysis I propose in (10) supposes such movement is obligated. Note, however, that the li particle’s Wackernagel requirement to be second in position allows for such movement to be post-syntactically driven.

3 There are independent considerations for our dispreferring to appeal to post-syntactic movement operation, but these are irrelevant for the present purposes of this paper. See Roberts (2010); Roberts (2012); Mitrović (2017a), and those cited, for a discussion.
In ditransitive *wh-li/wtf* constructions, however, both the *wh*-pronoun and the *li* particle precede the clitics, as per (7).

(11) Ko **li joj ju je dao?**

who.NOM Q her.DAT her.ACC AUX.3.SG give.PTC.M.SG

‘Who the hell gave it/her to her?!’

On its way to Force, the Focus marker *li* smuggles a specific focus meaning into the Force layer and triggers successive raising of *wh*\(^{\text{max}}\) to Spec(Force\(^{\text{max}}\)) from Spec(Focus\(^{\text{max}}\)). The very nature of the focus semantics in *wh*-questions should be automatic (Beck 2006, *inter multa alia*), which fortifies the argument that *li* be structurally located in the Focus projection on independent grounds.

Further evidence that the *li* particle is a marker of even-like associating focus comes from other independent constructions in the language (and note that it is optional in all of those). In expletive imperatives (12), for instance, it triggers the intensity implicature, presumably via the unlikelihood presupposition (more on that in the following section).

(12) Majku **(li) ti bezobraznu**

mother.ACC Q you.DAT faceless

“...your shameless mother”

In rhetorical exclamatives (13) it adds to the negative emotivity, as it does in exclamative evidentials (14), signalling, like even in English may, unlikeness and/or undesirability

(13) Živote, gorak **li si!**

Life.voc bitter Q are.2.SG

‘Life! You’re bitter!’

(14) Kasan **li si!**

late.PTC.M.SG Q are.2.SG

‘[What the hell,] You’re late!’

Perhaps not surprisingly, the *li* particle also features in comparatives, where the comparandum is an unlikely candidate for the relevant comparison. Unlike in English, it signals a rejection of the comparandum. For those speakers that accept *li*-doubling in rcs (9), (15) cannot contain a doubled *li*, as expected since comparatives do not express interrogative meaning. The same is true for exclamatives above.

(15) Slovenija je manja nego **li** \(*\text{li} \) Kina.

Slovenia is smaller than q=even q China

‘China is far bigger than Slovenia.’

In §2.2, I show independent evidence that the prosody of *wh*-terms is different in *wh-li/wtf* constructions. This discussion, as I contend, is also syntactically relevant for the typology of *dfcf*-violating and -obeying languages, which I now turn to.

Traditionally, the *dfcf* is a statement on prohibition on lexical material from realising on both the head and the specifier (edge) of the CP. (Chomsky and Lasnik, 1977; Riemsdijk and Williams, 1986).
The DFCF:

\[ [\text{comp} \ \text{wh}-\text{phrase} \ \text{complementizer}] \], where neither of the two is null. (Chomsky and Lasnik, 1977: 446)

One of the contributions of the present paper is to add a (synchronic) typological dimension (17iv) to the discussion on the nature of the DFCF.

(17) i. The DFCF must be obligatorily obeyed. (Standard English)
ii. The DFCF must be obligatorily violated. (West Flemish; Haege- man 1992)
iii. The DFCF may be optionally obeyed/violated. (Bavarian and Ale- mannic; Bayer 2015, int. al.)
iv. The DFCF, when violable (17ii), has interpretative effects. (Ser-Bo-Croatian)

And it is these interpretive effects I now turn to in §2.2.

2.2 SEMANTICS

I provided some purely structural evidence in the previous section that Focus and Force and derivationally linked in Ser-Bo-Croatian. (Roberts, 2012)
Empirically, focus and interrogative constructions share a common position: Spec(CP). Croft (1990), for instance, explains the obligatory presence in interrogatives by appealing to the obligatory presence of focus and thus treating leftward wh-movement as focus-movement. Bošković (2002), for instance, claims that in multiple-wh constructions, only the highest wh-term occupies the interrogative specifier while the subsequent are attracted to their specifier(s) by Focus.

On a more general (and specifically semantic) level, focus and question constructions have been receiving unifying treatment and there have been developments that the two construction are semantically (nearly if not completely) collapsable. Wh-questions, for instances, are taken to compose rather the same meanings, by virtue of the meaning of the wh-terms. The Hamblin school (see Kotek 2014 and references therein) treats, for instance, claims that in multiple-wh constructions, only the highest wh-term occupies the interrogative specifier while the subsequent are attracted to their specifier(s) by Focus.

The interrogative complementiser, like the Force above, on the other hand, have no real meaning: they represent identity functions which simply pass on the denotation of their sisters to form part of the resulting Hamblin set by virtue of combining with wh-terms. On a conceptual level, there is no interpretative difference between a declarative and an interrogative complementiser. Aside from the fact that focus is the core mechanical device for deriving interrogatives, with the notion of alternatives providing the means for the affinity, there have been other consideration, as Eckardt (2007) notes.

One counterargument, which is crucial for the purposes of this paper, is that a supposition of inherently focal denotation of wh-pronouns technically and conceptually prevents from treating truly focussed wh-constituents. (Consult Eckardt 2007: 212ff. for further counter-argumentation). Although Romero (1998) attempted an analysis of focused wh-phrases, there has been (to the best of my knowledge) no subsequent serious endeavour to understand these.

I refer the reader to Romero (2017) which seems to be a resumption in this research direction.
With an immodest supposition of contributing in this direction, I now turn to demonstrating that standard wh-interrogatives differ prosodically when followed by the li particle in the wtf construction.

2.3 PROSODY

Prosodically, both the pitch and the intensity contours distinguish the wh-phrase in standard questions (null Force) from the wh-phrase in wtf interrogatives (with a non-null Force).

2.3.1 FIRST STUDY

The context for the minimal prosodic study reported in this section is the following: the participant is a mathematics teacher in high school. In the standard question in (18), the participant was asked to inquire of the student how s/he managed to arrive at the final result of the calculation, supposing a standard resolution (answerhood) condition. The pitch and intensity for this sentence are plotted in Fig. 1.

(18) Kako si uspio riješiti račun?
    how AUX.SG succeed solve.INF calculation
    ‘How did you manage to solve the calculation?’

By contrast, in (19) is a wtf question asked in line with a variant of the context: the participant is still a mathematics teacher in high school. There was one question on partial differential equations assigned for homework which no student could ever solve. The participant is recorded asking the rhetorical and negatively emotive question, supposing that it was impossible for the student to have solved it. The pitch and intensity for this sentence are plotted in Fig. 2.

(19) Kako li si uspio riješiti račun?
    how Q AUX.2.SG succeed solve.INF calculation
‘How on earth did you manage to solve the calculation?’

Compare the contours between a standard- and a wfr- featuring wh-term. While the maximum pitch for standard interrogative was 234.6 Hz, the maximum pitch for the wfr interrogative was 285.3 Hz.

2.3.2 SECOND STUDY

I report here on a larger experiment, which was carried out with 8 untrained native speakers of Ser-Bo-Croatian from north-western (Krajina) area of Bosnia and Herzegovina (3 male, 5 female). At the time of the testing, the participants were unaware of the core aim of the study. Recording and analysis were carried out on a MacBook Pro (2016 model). The sound files were annotated and analysed using the software Praat (Boersma and Weenink, 2011: ver. 6.0.36). Participants were presented with 3 (six) pairs of interrogative wh-sentences, differing, on the one hand, in the syllable count of the wh-pronoun (#σwh) and, on the other, the presence/absence of the li particle. The three (pairs of glossed) sentences were the following:

\[(20)\]  
a. Koliko (li) je mrtvih?  
how.many Q AUX.3.SC dead  
‘(My God!) How many dead are there?’ \((#σwh = 3)\)

b. Kome (li) je dao?  
whom.DAT Q AUX.3.SC this gave  
‘Who (on earth) did you give this to?(!)’ \((#σwh = 2)\)

c. S kim (li) je bio?  
with whom.INS Q AUX.3.SC was  
‘Who (on earth) was he with?(!)’ \((#σwh = 1)\)

As wh-words with higher number of syllables carry pitch more than those with fewer number of syllables, I report here the results of the trisyllabic context (20a) only.
Two effects were considered: intensity and pitch contour, as discussed below. The relevant effect that was investigated was obtained using ANOVA, using the `aov` function in R (Development Core Team, 2008), which confirmed a significant main effect of the context on both the pitch intensity maxima and pitch maxima.

**Intensity** For intensity maxima, the two contexts under discussion were investigated: regular questions with the first landing site of *wh*-terms in Spec(ForceP) versus rhetorical/wtf constructions with Spec(FocP) being the first landing site in the C-system. The variable context is, in fact, significant for intensity maxima ($p = 0.000402$), while inter-speaker variation is insignificant ($p = 0.002044$). This confirms that the differential interpretation correlates with a significant intensity characterisation on the *wh*-phrase. Pairwise post-hoc tests revealed that there was a significant difference between regular and rhetorical interrogative readings. This is aligned with the syntactic analysis proposed earlier where the two *wh*-pronouns occupy, or move through, different positions which gives rise to different interpretation. I turn to the latter in the next section.

![Figure 3: Intensity maxima as per structural contexts and position of *wh*-pronouns.](image_url)

The corresponding details are presented in Tab. [3].

**Pitch** Just as intensity, the pitch contours also differ significantly with respect to the context, i.e. the presence of the *li* particle, triggering rhetorical/wtf inferences, is reflected in prosody. The context has a very significant effect on the pitch contour, specifically pitch maxima ($p = 0.00263$), while inter-speaker variation is insignificant ($p = 0.00140$). Pairwise post-hoc tests, for a 95% family-wise confidence level, confirmed these significance results.

In Fig. [4], the raw results by context type are shown, i.e. for regular versus rhetorical questions.
The raw results of pitch contours, characterised by pitch maxima, minima and corresponding ranges, i.e. the respective difference between maxima and minima, are given in Tab. 3. Two prosodic correlates were found for the difference between regular and rhetorical/wrt wh-interrogatives: both intensity and pitch are significantly higher in rq constructions. The syntactic analysis proposed in §2.1 differentiated between regular and rhetorical questions. The former dfcf-compliant wh-interrogatives were analysed as involving a single movement operation, where wh-phrases targeted the Spec(ForceP) site in a single movement operation. The latter dictate a Focus-associating movement of the wh-phrase to Spec(FocP). I have remained agnostic as to whether an additional movement step from Spec(FocP) to Spec(ForceP) takes places since nothing in the analysis rests on clarifying this assumption (I return to this point in §3.4). The critical different being the landing sites: Spec(FocP) for rhetorical questions and Spec(ForceP) for regular wh-interrogatives.

Movement to the Focus layer of the C-system is predicted to yield not only different interpretative properties of the question, but also, *ceteris paribus*,
Table 3: Raw details of pitch contour variation in trisyllabic *wh*-pronouns in the two differential contexts: Spec(ForceP) vs Spec(FocP) yielding regular vs rhetorical interrogatives, respectively (across speakers 1–8). Values are in Hz.

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Max</th>
<th>Min</th>
<th>Range</th>
<th>Max</th>
<th>Min</th>
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<tr>
<td>s1</td>
<td>261.637</td>
<td>192.810</td>
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<td>458.164</td>
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<td>226.439</td>
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<td>186.231</td>
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<td>76.635</td>
<td>284.311</td>
<td>194.043</td>
<td>90.267</td>
</tr>
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</table>

prosodic reflexes of Focus-association. Here, I reported on a study which shows that these reflexes obtain.

In the next section, I turn to explaining the semantic/pragmatic properties of *rq/wtf* constructions.

3 ANALYSIS

Before proceeding, let me contextualise briefly the analysis by outlining three core approaches, drawing generally from Caponigro and Sprouse (2007), to the meanings of rhetorical questions, which is what *wtf* construction demonstrably are.

**Rhetorical questions as negative statements** The first approach to *rq* treats them as covert negative statements. Furthermore, while they are interpreted as statements, they are syntactically derived as presumably proper questions. If a *rq* contains a *wh*-phrase, “the *wh*-phrase maps onto a negative quantifier, as the result of a post-LF derivation.” (Han, 2002: 220) This approach is inconsistent as it maintains that syntactic structure does not feed semantic interpretation in the case of *rq*, yet manages to instruct, in whatever way, that an existentially quantificational *wh*-term be mapped onto a negative quantifier. I find this conceptual argument, coupled with the lack of predictive power of Han’s (2002) analysis, sufficient to abandon building my proposal in this conjectural direction.

**Rhetorical questions as questions without an answer** *Rqs* can also be treated as full questions, compositionally, with an additional assumption that their answer-set is empty. Since questions denote nothing more than the set of their answers, this approach may be intractable since the meaning of a *rq*, *ceteris paribus*, would amount to ∅. I abandon this line of enquiry also.

**Rhetorical questions as questions** This last camp of approaches is varied. According to Caponigro and Sprouse (2007), *rq* are not asked to
trigger an increase in the amount of mutual knowledge as the knowledge is shared by both the Speaker and the Addressee.

In the following subsections, I will adopt the standard assumption that wtf RQSs are questions and derive their properties—syntactic, semantic-pragmatic, and prosodic—successively.

My analysis aims to capture the facts along the following lines: wtf RQSs invoke negatively emotive surprise over the existential presuppositional of the wh-term that cannot be readily suppressed. This will turn out to be a non-trivial pursuit. In my analysis, I do not assume all RQSs form a single empirical class. From now on, I will focus exclusively on the wtf type outlined in the previous sections. I take the on earth/in hell adverb in English, being semantically on a par with the overt focus/interrogative particle li in Ser-Bo-Croatian. The English adjunct to yield a rhetorical effect, as understood here: the negative surprise contribution on part of the Speaker and reduced answerability (i.e., RQSs denote biased sets of answers).

**Desiderata** The desiderata for a theory of biased wh-interrogatives include the following results.

(21) The analysis should

i. derive negatively biased attitude and emotive factivity,

ii. account for the reduced resolution conditions (unanswerability),

iii. account for the syntactic property of DFCF violations,

iv. account for the differential prosodic features of the wh-phrase in wtf constructions.

**Roadmap** In what follows, I lay out and motivate the ingredients for my analysis. The first the emotive component, which I derive by embedding the wtf RQSs under emotive factives.

### 3.1 Deriving Emotivity

I follow Romero (2015: 227, ex. 12) in her adapting the semantics of desire-predicates (of Heim 1992 and Stalnaker 1984) to emotive factives, such as the surprise predicate. Defining this predicates requires two ingredients. The first is a relation of comparative similarity, which maps $p$ to $p$-worlds maximally similar to $w$). The second is an expectability ordering ($\exp_{(x,w_0)}$), as defined in (22). Note that the epistemic similarity may be traded for a bouletic or teleological modal ordering which derives the negative flavour of the emotive factive.

(22) \[
[p \text{ surprises } x] = \lambda w_0 \left[ \forall w \in \bigcap \text{Dox}(w_0) \left[ \text{SIM}_{w}(\neg p) \exp_{(x, w_0)} \text{SIM}_{w}(p) \right] \right]
\]

The alternative to $p$ need not be (and is not) $\neg p$ Given the focus-sensitivity of emotive factives, the alternative activation and accessibility must somehow be obtained. I succeed in obtaining the relevant alternatives for the factive from within the complement clause, which will the role of the wh-term in Spec(ForceP).

To see this mechanism at play, consider the following scenario. Since the relevant focus-marking in the complement clause, in line with the scenario, is on tuesday, the focus alternatives from the embedded clause are
able to project upward point-wise and supply the emotive factive with the relevant doxastic alternatives.

(23) [scenario] Lisa knew that syntax was going to be taught. She expected syntax to be taught by John, since he is the best syntactician around. Also, she expected syntax to be taught on Mondays, since that is the rule.

a. It surprised Lisa that John taught syntax on Tuesdays \textit{TRUE}

b. It surprised Lisa that John taught syntax on Tuesdays \textit{NOT TRUE}

With the emotives in place (21i), I turn to the more relevant semantic/pragmatic problem, i.e. deriving the rhetorical interrogative nucleus. The question meaning I am after is the one with reduced resolution condition (21ii), allowing for complete unanswerability without affecting the core logical makeup of the question as an answer-set denoting expression. I start the motivation for an analysis by adopting, and successively adapting, the meaning of \textit{even} which would rank the relevant answers in a way that would allow for suppression of resolution conditions.

3.2 Suppressing Resolution Conditions and the Meaning(s) of \textit{even}

I develop the view that the \textit{li} particle in its original Focus position associates with the (focus-sentive) meaning of a particle like \textit{even}, as independent evidence in (12–15) suggests.

The particle \textit{even} does not seem to affect truth conditions, yet communicates that the proposition it associates with is less likely than its alternatives. In (24), the more likely alternatives to my ex’s turning up the party, are all other people.

(24) \textit{Even} my ex turned up to the party.

Standard \textit{even}, $\text{EVEN}_{\text{STN}}$ as \textit{Crnić} (2014: 118) notes, triggers a likelihood presupposition that its propositional argument is less likely than all the relevant alternatives relative to the context of use. In (25), $\text{EVEN}_{\text{STN}}$ is defined, where $p \prec_w q$ is defined iff $p$ is less likely than $q$ (given the relevant facts in $w$; see \textit{Crnić} 2011 for detailed discussion).

(25) \[
\llbracket \text{EVEN}_{\text{STN}} \rrbracket^v_w \gamma = \lambda C_{\llbracket \text{st} \rrbracket v} \cdot \lambda p_{\llbracket \text{st} \rrbracket} : \forall q \in C[p \neq q \rightarrow p \prec_w q] \cdot p
\]

\textit{Iatridou and Tatevosov} (2016) discuss the appearance of \textit{even} in questions that cannot be accounted using the standard entry for $\text{EVEN}_{\text{STN}}$ in (25). Consider the following scenario.

(26) \quad \textit{Iatridou and Tatevosov} (2016: 298, ex. 7)

\textit{A:} Let’s meet at Oleana for Dinner. Is that OK?

\textit{B:} Where is that \textit{even}?

While the $\text{EVEN}_{\text{STN}}$ operates on propositions (25), \textit{Iatridou and Tatevosov’s} (2016) $\text{EVEN}_{\text{IT}}$, or $\text{EVEN}_{\text{IT}}$, given in (27), is defined for questions, i.e. sets of propositions. The latter is taken to pick out the question that is least likely to be asked (in the relevant context). In (27), the definition of \textit{Iatridou and Tatevosov’s} (2016) $\text{EVEN}_{\text{IT}}$ is given.

(27) \[
\llbracket \text{EVEN}_{\text{IT}} \rrbracket^v_w \gamma = \lambda C_{\llbracket \text{st} \rrbracket v} \cdot \lambda q_{\llbracket \text{st} \rrbracket} : \forall q' \in C[q' \neq q \rightarrow q \prec_w q'] \cdot q
\]
I now briefly reproduce Iatridou and Tatevosov’s (2016) composition of their even\textsubscript{IT} for a question ‘Where is Tunica even spoken?’ in (28). After the nucleus is existentially closed for the locative, the Question Speech Act applies to the formed proposition and delivers a set of propositions, i.e. the denotation of the question, with the wh-term applying as the \( \lambda \)-abstract to the question. even\textsubscript{IT} attaches at the root and projects the unlikelihood presupposition, as per the lexical entry above.\footnote{See Iatridou and Tatevosov (2016) for technical details and further particulars.}

(28) When defined, \([\text{Where is Tunica even spoken?}] =

\[
\begin{array}{c}
\begin{array}{c}
\text{CP} \\
\text{EVEN\textsubscript{IT}} \\
\text{wh}_1 \\
\text{TP} \\
\text{CN}_{[\text{it}]} \\
\text{tunica is spoken}_1
\end{array}
\end{array}
\end{array}
\]

The resulting assertive meaning is the set of questions, but those (presuppositionally) least likely to be asked. The lexical entry for even\textsubscript{IT} brings us close to the meaning behind the DFCF-violating wh-interrogatives in Ser-Bosnian. The least likelihood of the question is rather naturally connected to the notion of surprise by its logical design, and the contextual surprise derived by conventional implicature (I use \( \sim \sim \sim \sim \) to symbolise implicatures). The entry of even\textsubscript{IT}, however, alone cannot account for the negative surprise attitude the constructions obligatorily express, for at least two strong reasons. Consider the relevant data once more:

(29) [context: Little Mujo solved a partial differential equation, and his teacher says:] Kako \text{si} uspio rješiti \text{taj} račun?!

‘How \( \text{aux.sg} \) succeeded, \( \text{ptc.m} \) solve, \( \text{inf} \) this, \( \text{m} \) calculation, \( \text{m} \)

‘How on earth did you manage to solve this problem?‘

\( \sim \sim \sim_1 \) The speaker is emotionally invested: negatively surprised.

\( \sim \sim \sim_2 \) The question is rhetorical and does not impose resolution conditions (i.e., it may be unanswerable).

While surprise may obtain, the emotive negativity does not derive using the technology of the lexical entry for even\textsubscript{IT} alone. As there is nothing intrinsically attitude-pertaining in their proposal underlying even\textsubscript{IT}, Iatridou and Tatevosov (2016) may relate the attitude expression to conventional implicatures. Even with this apparatus in place, the implicated attitude may, all else being equal, be a non-negative one. This one of the shortcomings in my adopting even\textsubscript{IT} to cover the meaning of the biased interrogatives under discussion. This, in fact, does not go against Iatridou and Tatevosov’s (2016) analysis \( \text{perse} \), but rather against the application of their analysis to the empirical set relevant here. In order to obtain the relevant pragmatic ingredients, I follow Elliott et al.’s (2015) in customising Iatridou and Tatevosov’s (2016) analysis of even\textsubscript{IT}. (The second reason \( \sim \sim \sim_2 \) to do with resolution conditions is addressed below.)
3.3 Deriving Negative Bias

There is an attitude-expressing even that Iatridou and Tatevosov’s \( \text{EVEN}\) \(_{IT} \) cannot derive. Consider the following, from Elliott et al. (2015, ex. 6):

\[
(30) \quad [\text{context: Andrew is smoking something that is causing a pungent smell.}] \\
\quad \text{What is Andrew even smoking?}?
\]

Clearly, given the context, the question in (30) is not unlikely to be asked (in fact, quite the opposite). This even, then, is distinct from \( \text{EVEN}\) \(_{IT} \). Elliott et al. (2015) suggest that the core meaning of even in (30) is not unlikelihood, but rather low-rankedness. (I return to, and adapt, this notion later.)

The attitude even, \( \text{EVEN}\) \(_{ATT} \) in (30), according to Elliott et al. (2015) expresses the following meaning: All conceivable answers to the \( \text{wh} \)-question are low-ranked to some modal ordering. They assume that the modal ordering can be based on judge’s (j)/speaker’s (s) desires (bouletic), goals (teleological), or expectations (epistemic).

Just as Iatridou and Tatevosov (2016), Elliott et al. (2015) take \( \text{EVEN}\) \(_{ATT} \) to associate with a question, qua the set of propositions (‘Hamblin-Question’), given an ordering source \( c_0 \). Their question-associating \( \text{EVEN}\) \(_{ATT} \) “expresses that for each \( q \in Q \), for all \( \forall w \in \text{DOX}_{c_0}(c_i) \), if \( q(w) = 1 \), then \( w \) is non-maximal according to the ordering source \( c_0 \).” I take this meaning to be part of the presuppositional component, with the assertive component returning the input, i.e. the Hamblin-Question (the assertive component is thus stable, as per standard assumptions on truth-conditional vacuity of even, across the three lexical entries for \( \text{even}, \text{EVEN}\) \(_{IT} \), and \( \text{EVEN}\) \(_{ATT} \)). I formalise Elliott et al.’s (2015) \( \text{EVEN}\) \(_{ATT} \) in (31).

\[
(31) \quad \left[ \text{EVEN}\) \(_{ATT} \right](Q) = \forall q \in Q. \forall w \in \text{DOX}_{c_0}(c_i) : [q(w) = 1 \rightarrow \neg \text{MAX}_{c_0}(w)]. Q
\]

Thus for (30), the modal ordering for the attitude-holder is epistemic as the speaker (attitude-holder) thinks that whatever Andrew is smoking is surprising.

Aside from \( \text{EVEN}\) \(_{ATT} \), Elliott et al. (2015) also propose a variant of the discourse even (\( \text{EVEN}\) \(_{DIS} \)), which is close in definition to \( \text{EVEN}\) \(_{IT} \), but utilises low-rankedness instead of unlikelihood. While not formally defined, \( \text{EVEN}\) \(_{DIS} \) is defined as rejecting the presupposition that is made in the discourse, namely that a more fundamental question has been resolved. This, they propose, is derived via low-rankedness of the question in the discourse (and does not derive from the unlikelihood meaning). Their formal departure in describing \( \text{EVEN}\) \(_{DIS} \) is, in fact, in the interpretation of the logical role of the \( \bowtie \)-function in Iatridou and Tatevosov’s (2016) definition of \( \text{EVEN}\) \(_{ATT} \). Unlike them, Elliott et al. (2015) claim the the \( \bowtie \)-ordering “is not only based on the (un)likelihood of the question act, but more broadly on goals, conventional linguistic behaviour, etc.” I therefore formally reconstruct \( \text{EVEN}\) \(_{DIS} \) using a new \( \blacktriangle \)-ordering relation that Elliott et al. (2015) suppose. With (32) adopted, I customise (32) and formally dub \( \text{EVEN}\) \(_{DIS} \) in (33).

\[
(32) \quad \bowtie(Q) = \forall q \in Q. \forall w \in \text{DOX}_{\text{EVEN}}(c_i) : [q(w) = 1 \rightarrow \neg \text{MAX}_{\text{EVEN}}(w)]. Q
\]

\[
(33) \quad \left[ \text{EVEN}\) \(_{DIS} \right](Q) = \forall q \in Q. \forall w \in \text{DOX}_{\text{EVEN}}(c_i) : [q(w) = 1 \rightarrow \neg \text{MAX}_{\text{EVEN}}(w)]. Q
\]

Note that Elliott et al. (2015) define their \( \text{EVEN} \) operators as attaching to interrogative meanings that obtain through a Question Speech Act operator and thus the relevant alternatives \( Q \) are not those of questions but alternatives comprising question speech acts (cf. Iatridou and Tatevosov 2016: 309, fn. 20). In my discussion, I make no such theoretical commitments, primarily as I do not think I require them, and assume \( Q \) contains question alternatives, i.e., a set of answer sets.
(32) Let $Q$ and $Q'$ be alternative question acts. $Q \blacktriangleleft Q'$ means $Q$ is ‘more basic’ than $Q'$ and needs to be resolved before resolving $Q'$.

(33) \[ \llbracket \text{EVEN}_{\text{DIS}} \rrbracket^W_q = \lambda c_{((\leq \leq)\leq)} \cdot \lambda q' \in C[q' \neq q] \cdot q \blacktriangleleft W q' \cdot q \]

Elliott et al. (2015) thus re-read (30) to mean that “A assumes that the question of where Oleana’s is has been resolved, but B rejects to accommodate this presupposition.”

What I hoped to gain by following Elliott et al. (2015) in hope to adopt \textsc{even\textsubscript{ATT}} and \textsc{even\textsubscript{DIS}} is a hard-wired attitude relation and automated negativity at that. However, the two lexical entries differ substantially in their logical forms (to the extent that I can gather). Starting with the first, \textsc{even\textsubscript{ATT}} (31) does not impose proper ordering on the doxastic alternatives it brings into play: it only discriminates between maximal and non-maximal questions. There is no true question that can be maximal. If all questions are equally low-ranked (which does not follow from their definitions directly), it is unclear what a higher ranked question alternative would be, which gives \textsc{even\textsubscript{ATT}} an intractable quality, at least for my purposes. In the second lexical entry for \textsc{even\textsubscript{DIS}}, as best as it may be formalised (33), $\blacktriangleleft$-ordering is imposed, unlike in (31) for \textsc{even\textsubscript{ATT}}, but for reasons to reject a presupposition that a previous question has not been resolved.

This bring us to the second impediment ($\sim\sim\sim\sim_2$) of \textsc{even\textsubscript{IT}} that \textsc{even\textsubscript{DIS}} also suffers: everything else being equal, \textsc{even\textsubscript{ATT}}-containing question imposes resolution conditions, which \textsc{wh-li}/\textsc{wtf} interrogatives in Ser-Bo-Croatian do not. Also, \textsc{wh-li}/\textsc{wtf} questions may be asked without prior questions or discourse, sharing the distribution of what the hell/what on earth/\textsc{wtf}-questions.

3.4 \textsc{wh-f-alternatives}?

In this last subsection, I synthesise the proposal and propose programatically a pragmatic principle and some revisions of the relationship between focus, questions, and \textsc{wh}-phrases.

Suppose the \textsc{wh}-term in fact has ordinary semantic value defined, contra Beck (2006) and Kotek (2014), int. al. Suppose further that the ordinary semantic value is the relevant set of strictly non-scalar alternatives. In the sense of Chierchia (2013), I assume that the true focus alternatives of \textsc{wh}-expressions are their scalar alternatives along the dimension of its presuppositional component. The latter being existential, suppose its only focus/scalar alternative is non-existential.7

(34) The semantics of what:


i. Ordinary semantic value:

\[ \llbracket \text{what} \rrbracket^O = \text{undefined} \]

ii. Focus-semantic value:

\[ \llbracket \text{what} \rrbracket^f = \{x_c : x \text{ is a non-human} \} \]

b. Working proposal:

i. Ordinary semantic value:

\[ \llbracket \text{what} \rrbracket^O = \{x_c : x \text{ is a non-human} \} \]

---

7 In his analysis of indeterminate quantification patterns, Mitrović (2014) also posits a defined dimension of $\sigma$-alternatives for (indeterminate) \textsc{wh}-pronouns which are part of Horn scale ⟨something, everything⟩.
ii. **FOCUS-SEMANTIC VALUE:**

\[ [\text{what}]^f = \{ \text{something, nothing} \]  

There at least two arguments for this treatment. Firstly, I adopt Krifka’s (1995) stance in assuming that all scalar alternatives are inherently focused, which is borne out in (34b-ii). Secondly, the motivation for this treatment may be carried over from Alonso-Ovalle (2006) who convincingly argues that the *ordinary* semantic value of disjunction is its alternative value: what count as focus alternatives for other grammatical formatives are taken are ordinary semantic denotata for disjunction. Since disjunction and existential quantification (to which is what all *wh*-terms are reducible; see Mitrović 2014 or Xiang 2016 for a uniform treatment in this direction) are homeomorphic, it is sufficiently reasonable to motivate a focus-like ordinary semantic treatment of *wh*-phrases. Conceptually, this technical leaves room for the treatment of truly focussed *wh*-constituents. The *wtfrq* involving them, as I have demonstrated.

How would we implement this view (34b-ii) for *wtfrq*? After a *wh*-phrase raises to Spec(FocP), the focus-semantic alternatives of the *wh*-phrase are activated, yielding a two-membered Horn scale, comprising an existential and a non-existential member. After successive raising from Spec(FocP) to Spec(ForceP), the *wh*-phrase’s ordinary (non-scalar) alternatives are cached in order for the question meaning to obtain. I am therefore led to dub the following economy principle relevant for semantics/pragmatics.

(35) **PRAGMATIC ECONOMY ON ALTERNATIVE ACTIVATION:**

If activation of alternatives in the assertive dimension is blocked (by virtue of already being active), proceed to activating the alternatives in the presuppositional dimension.

In the focus dimension, *li* has the meaning similar to *even*\_dis*: rather than rejecting the presupposition than a previous question has been answered, it rejects the presupposition of its *wh*-associate, namely its existential alternative which in the focus dimension has only one remaining alternative: the un-existential value. This arrives at the desired result, both conceptual and empirical.

**4 CONCLUSIONS & OUTLOOK**

This paper analysed the *wtfrq* construction as a negatively emotive focus-construction that features a variant of *even*. I have shown that factivity arises from the *wh*-term in the complement clause and the negative attitude from an *even* operator that attaches to the question. I have corroborated my analysis using syntactic, semantic, pragmatic, and prosodic arguments.

Syntactically, I buttressed Roberts’s (2012) analysis of the *li* q-particle as originating in the Focus layer of the C-system. I did this by showing that at least one variety of Ser-Bo-Croatian in Bosnia in negatively biased (rhetorical) questions realises the *li* particle doubly. This is expected on a Focus analysis of *li*. Secondly, I reported on a prosodic study in §2.3.2 which shows prosodically different characterisation of *wh*-pronouns in rhetorical questions. This is, again, expected under a Focus analysis of *li*.

For an independent argument that the scalar alternatives are relevant in various *wh*-constructions, see Mitrović (2014) and those cited.
I then proceeded to a semantic-pragmatic analysis of *rq* by deriving, successively and successfully, the various properties of the *rq/wtf* meaning: emotive factivity (§3.1), rhetoricity, or its suppressed answerability (resolution conditions) (§3.2) factivity, and the negative attitude (§3.3). In the final subsection (§3.4), I integrated the previous facts to motivate a view according to which *wh* terms do not have undefined ordinary semantic value (Koteš 2014, int. al.). A programmatic principle of economy regulating alternative activation/exhaustification was proposed in order to contextualise the Ser-Bo-Croatian *rq/wtf* constructions within a broader set of cross-linguistic facts and theoretical considerations.

What may underlie the final piece of the proposal, concerning the admission of ordinary semantic value for *wh*-terms (which still allows them to be Hamblin sets), is a conjectural principle of pragmatic economy pertaining to even- and even-like focus-associating triggers (35).

I leave this next step for further pruning and research, along with the wider theoretical questions that need addressing in light of the novel data presented here and the corresponding inter-modular facts of the grammar of rhetorical questions.

REFERENCES


