Chapter 14

Revisiting the lack of verbal *wh*-words

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I propose that the cross-linguistic lack of verbal *wh*-words derives from the ill-formed logical form (LF) representations they would generate: verbs are predicates of eventualities and predication (≈logical attribution) and questioning are incompatible. I revisit the literature on interrogative pro-verbs arguing that there are no genuine interrogative verbs unrestrictedly ranging over any eventuality type. Last, I argue that my proposal also predicts the universal lack of other conceivable interrogative elements such as adpositions or tense markers.

1 Impossible questions

One of the prima facie most puzzling cross-linguistic constraints is the apparent lack of genuine verbal *wh*-words asking about the nature of the eventuality at stake.

For an illustration, let us take a situation like the one in Figure 14.1, the assassination of Julius Cæsar (as depicted in the 1798 painting by Vincenzo Camuccini).

Figure 14.1: *La morte di Cesare* (V. Camuccini)

Such an event can be described with the proposition expressed by (1), a classic example discussed by Davidson (1967) and many others:

(1) Brutus stabbed Cæsar.

But besides asserting what happened, there is a variety of questions we may ask about the event: questions about the killer (2), the killed one (3), the location of the event (4), the moment that it took place (5), the way it was performed (6), or the motives of the assassin (7), among others:

(2) *Who* stabbed Cæsar?

(3) *Whom* did Brutus stab?

(4) *Where* did Brutus stab Cæsar?

(5) *When* did Brutus stab Cæsar?

(6) *How* did Brutus stab Cæsar?

(7) *Why* did Brutus stab Cæsar?

All of them are perfectly grammatical questions. However, there is a type of question that we cannot directly ask; we cannot ask questions on the nature of the eventuality itself. There is simply no interrogative pro-verb, so that we can ask questions such as (8):

(8) * *Whxyzed* Brutus Cæsar?
     'What type of event happened such that it has Brutus as external argument and Cæsar as internal argument?'

We could generalize this observation as in (9):

(9) *Generalization*: There are no verbal *wh*-words ranging over any eventuality type.[1]

This is such an obvious fact that it has seldom been discussed in linguistics (see a few exceptions in Hagège 2003; 2008; Cysouw 2004; Idiatov & van der Auwera 2004).

The way many languages (including English) have of circumventing the lack of verbal *wh*-words is to decompose the transitive pro-verb of (8) into a dummy *do* verb and an interrogative pronoun as its direct object, as in (10):

(10) *What* did Brutus *do* to Cæsar?

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[1]See §4 for discussion.

In this article, I discuss the nature and strength of this constraint and propose a formal account for it based on general legibility constraints (representational well-formedness conditions) at the interface between language and the conceptual–intentional (C–I) systems which would be violated by genuine interrogative pro-verbs. After briefly discussing the cross-linguistic availability of interrogative pro-verbs in §2, in §3 I make the proposal that the lack of verbal *wh*-words is due to the fact that sentences with genuine interrogative pro-verbs would generate ill-formed logical forms for the C–I interface. In §4 I revisit the evidence for interrogative pro-verbs in the light of my proposal and in §5 I briefly address a prediction my proposal makes regarding the unavailability of other conceivable *wh*-words such as interrogative adpositions or tense markers.

2 A marked cross-linguistic option

The lack of verbal *wh*-words is a cross-linguistically pervasive phenomenon to the point that Hagège (2003) questions "Whatted we to interrogative verbs?" as a way of expressing the typological rarity of them (see also Hagège 2008; Idiatov & van der Auwera 2004 for further typological analyses).[2]

In what is probably the broadest comparative analysis so far, Hagège (2008) studies a sample of 217 languages of which he only classifies 28 as having the property of displaying interrogative pro-verbs. He conjectures that this may be due to an economy restriction against morphologically unanalyzable forms:

> This suggests that if interrogative verbs are found in so few languages, one of the reasons might be that most of them use an uneconomical device, by saying 'do what', for example, in a single unanalyzable unit, instead of using a succession of two very frequent elements, meaning, respectively, 'do' and 'what'.   (Hagège 2008: 30)

I believe that this cannot be the reason for their scarcity, for otherwise decomposed *wh*-words (*what person* = who, *what place* = where, *what time* = when,

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[2]Actually, in Basque (isolate), as in other languages, there is the morphological equivalent of Hagège's (2003) "whatted", *zertu*, which is composed of the indefinite/interrogative pronoun *zer* and the verbalizer suffix *-tu*. This verb, however, does not have the value of an interrogative pro-verb, but that of a "regular" pro-verb (that of avoiding to lexically express the nature of an eventuality, typically because of word retrieval difficulties, or because we want to avoid being too explicit about it (because of taboo or so)).

etc.) would be the norm across natural languages. And languages would resemble each other much more in this respect.[3] In the next section I will make an alternative proposal (a formal one) trying to account for this typological puzzle claiming that genuine interrogative pro-verbs (verbs asking about eventuality types) cannot exist because they would violate legibility constraints at the C–I interface.

3 A conjecture: Illegibility at the conceptual–intentional interface

I would like to propose that the lack of verbal *wh*-words cross-linguistically derives from a legibility constraint at the interface between the linguistic computation and the language-external conceptual–intentional systems (by assumption, universal across the species). The idea is that C–I systems impose legibility well-formedness conditions on their possible inputs (namely, on the form of acceptable logical form representations) and the logical forms corresponding to sentences including genuine interrogative pro-verbs would violate those legibility constraints. Thus, if my hypothesis is correct, the general lack of verbal *wh*-words is an interesting fact about languages, but not a linguistic fact in essence (for it derives from conditions imposed onto language by language-external systems of thought).[4]

In particular, my proposal is that the lack of interrogative verbs derives from a general constraint on the logic of predication: predication amounts to logical assertion whereby a property is ascribed/attributed/applied to an object (cf. i.a. Engel 1989; Partee et al. 1990; McGinn 2000; Davidson 2005; Burge 2007; Liebesman 2015). That is, predicates predicate and it is therefore that predication qua interrogation is incongruent (not only in first-order logic).

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[3]Alternatively, Idiatov & van der Auwera (2004) hypothesize that *wh*-questions involve an existential presupposition such as (i):

(i)   A constituent question is a question that asks for an instantiation of the variable *x* in an "It is known that (possibly) HAPPEN/EXIST(... *x* ...)" structure.

According to their analysis, such a structure would be the presupposition that the situation under interrogation (possibly) exists, existed or will exist, and the variable *x* is formally expressed by an interrogative pro-word. They conjecture that only "endocentric phrasal" elements can be *wh*-words but such an analysis is also problematic, since it implies that all *wh*-words are phrasal, and that verbs are simple terminal elements, contrary to standard analyses of argument structure (see below).

[4]See Chomsky (2005); Berwick et al. (2011); Roberts (2012); Biberauer & Roberts (2017) for discussion on the different factors affecting the design features of I-languages.

Furthermore, I shall argue that an "interrogation qua predication" would also derive into having logical form representations with DPs devoid of θ-roles (violating the θ-criterion, cf. Chomsky 1981 or Higginbotham 1985).

To begin with, it is essentially a truism that argument DPs function as participants in the eventuality denoted by the verb in a clause. Semanticists and philosophers of language have distinguished different types of participation (the literature talks about agents, themes, undergoers, experiencers, beneficiaries, etc. as the potential thematic- (or θ-) roles that a verbal argument can have) and the existence of some sort of θ-roles is virtually undisputed in linguistic theory, even if their conception and ontological status varies from one work to the other (see e.g. Carlson 1984; Dowty 1989; Parsons 1995). A more "syntacticising" view of θ-roles even proposes that θ-roles should be syntactically conceived as formal features, with a legibility requirement that those features be derivationally checked by logical form (LF) (see i.a. Bošković & Takahashi 1998; Hornstein 1999; Lasnik 1999; Manzini & Roussou 2000; Fanselow 2001; Bagchi 2007).[5]

In particular, θ-roles are central to neo-Davidsonian semantics, a conception of semantics deeply rooted in the philosophy of language that constitutes a natural partner of minimalist syntax (see Parsons 1990; 1995; Herburger 2000; Hornstein 2002; Pietroski 2002; 2003; 2005; Schein 2002; Irurtzun 2007; Lohndal 2014). In this framework, θ-roles function as the link between arguments and events in logical form. For instance, example (1) – repeated here as (11a) – would have the neo-Davidsonian logical form representation in (11b), which roughly reads as "there was an event that was a stabbing event that is past and whose agent was Brutus and whose patient was Cæsar":

(11)   a.   Brutus stabbed Cæsar.
       b.   ∃e [Agent(e, Brutus) & Stabbing(e) & Past(e) & Patient(e, Cæsar)]

The nature of each θ-role directly derives from the bottom-up syntactic composition of the clause, whereby DPs are merged in specific positions within the projection of event-denoting heads (see i.a. Pietroski 2003; 2005; Borer 2005; Ramchand 2008).

I would like to propose that the requirement for DPs to bear θ-roles derives precisely from the neo-Davidsonian logical form representation of sentences at the C–I interface: as shown in (11b) θ-roles relate individuals and eventualities

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[5]In the P&P framework, the projection principle guaranteed all argument-structure restrictions to be set at D-Structure, but with the minimalist abandonment of internal levels of representation, an option opened for not all argument-structure relations to be set at first merge, therefore allowing for movement into θ-positions (see the references above).

and my proposal is that *wh*-words introduce variables that may range over in-
dividuals, as in (12a), for 'Who stabbed Cæsar?', or (12b), for 'Whom did Brutus
stab?', or other elements like adjuncts (see below §5), but *not* over predicates of
eventualities. As a matter of fact, predicating an interrogation is logically incon-
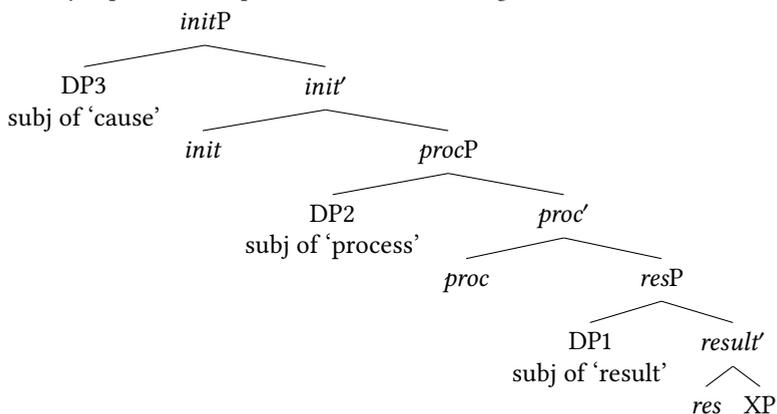gruent for predicates *assert/attribute* and interrogations *query* (12c):[6]

(12) a. ∃e [Agent(e, ?) & Stabbing(e) & Past(e) & Patient(e, Cæsar)]
      b. ∃e [Agent(e, Brutus) & Stabbing(e) & Past(e) & Patient(e, ?)]
      c. * ∃e [Agent(e, Brutus) & ?(e) & Past(e) & Patient(e, Cæsar)]

That is, the logical form in (12c) involves a predicate that questions its own
essence, and this is incompatible with the essential function of a predicate: pred-
icating (i.e. ascribing properties).

Furthermore – and this is important (see §4) – a logical form along the lines in
(12c) would still be unwarranted. In fact, a predicate like *?(e)* crucially devoids the
eventuality of any nature (it is completely undetermined), and as a consequence
the DPs participating in the eventuality get no θ-role (given that θ-roles directly
depend on the nature/structure of the eventuality at stake). In other words, in
the absence of a specific semantic (and structural) specification for the verbal
predicate of eventualities, its arguments will also be devoid of any θ-role, since
θ-role assignment directly depends on the structure at the *v*P layer.[7]

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[6]For simplicity, I stick to this declarative type of logical form representation; see in Lohndal &
Pietroski (2011) an approach to an "I-Semantics" for questions.

[7]In particular, decompositional analyses such as Ramchand's (2008) propose that verbal pred-
icates are phrases that may be composed by different heads (Initiation°, Process°, Result°) or-
dered in the hierarchical embedding relation of sub-events and that the θ-role that a DP will
get directly depends on the position where it was merged:

Thus, rather than (12c), the consequence of having an "interrogation-cum-predication" would be along the lines in (13), where _____ represents the unassigned θ-roles of the participants:

(13)   * ∃e [_____(e, Brutus) & ?(e) & Past(e) & _____(e, Cæsar)]

Note that something like (13) is not a mere instance of structural ambiguity vis-á-vis the hearer; but an instance of *structural vagueness* and therefore, of ungrammaticality (cf. the θ-criterion). An underspecified representation such as (13) would generalize over all sorts of argument structures with different θ-role assignments; from *Brutus stabbed Cæsar*, to *Brutus liked Cæsar*, *Brutus had Cæsar*, *Brutus obtained Cæsar*, *Brutus created Cæsar*, *Brutus became Cæsar*, or *Brutus was Cæsar*.

Again, the way English (and many other languages) has to circumvent the lack of verbal *wh*-words is to employ a complex *do what* predicate that introduces a direct object and implies the assignment of an Agent θ-role to the subject. This, of course, results in a convergent logical form representation. In contrast, the logical form in (13) is critically underdetermined where _____*(e, Brutus/Cæsar)* may correspond to any theta role (agent, experiencer, possessor, …). In fact, there is no neat way of expressing such a meaning in plain English (which is precisely my point) but it would correspond to some higher-order description including metalinguistic terms along the lines already expressed in (8), here modified to (14):

(14)   Meaning of (13): 'What type of eventuality happened such that it has Brutus as external argument (whatever the θ-role) and Cæsar as internal argument (whatever the θ-role)?'

The fact that the assignment of θ-roles depends on the structure of the sentence, and that different θ-roles depend on different syntactic configurations makes clear that questions such as (8) or (13) cannot exist in natural language.

In a nutshell then, my proposal is the following one:

(15)   *Proposal:* The lack of verbal question-words derives from the illegibility they would generate at the C–I interface, since their semantics involves predicating interrogations and a failure to assign θ-roles to event participants.

In the next section I revisit the cross-linguistic evidence for interrogative proverbs arguing that a large number of the "interrogative verbs" purported in the

literature do not question the type of eventuality itself, and the few cases that actually do so are loaded semantically, so that specific event structures and θ-roles (or macro-roles) are established.

4 Revisiting the evidence

The hypothesis I just presented predicts the lack of *wh*-words that question the nature of an eventuality. However, note that it leaves room for verbal *wh*-words to exist, provided that they are semantically "loaded" (the type of eventuality they stand for is determinate and so are the θ-roles of their participants). In this section, I will argue that this prediction is borne out and that the few predicates questioning the nature of the eventuality that are found cross-linguistically are of this sort: they are not agnostic as to the type of eventuality which is at stake.

In this section, I review the evidence for interrogative verbs available cross-linguistically, arguing (i) that many of the alleged interrogative verbs are merely verbal forms employed in questions that do not question the type of eventuality at stake, (ii) that often, rather than atomic and unanalyzable, interrogative verbs are syntagmatic (of the *do what*-type), and (iii) that those languages that do have genuine interrogative verbs that question the type of eventuality involve a specific argument-structure (hence, they do not contradict the generalization in 9).

4.1 Not questions on the nature of the eventuality

Besides the literature about interrogative verbs being scarce, often times it is contradictory in that different authors talk about phenomena of a very different nature. This is the case of verbs with "interrogative mood", which is a phenomenon that should be treated as completely separate from interrogative pro-verbs.

As an illustration, Kalaallisut (Eskimo-Aleut) is a language with "interrogative mood" verbs, but lacking genuine interrogative pro-verbs: Sadock (1984: 199) analyzes a set of verbal forms in Kalaallisut that appear in interrogative constructions, but as the description makes clear, rather than verbal question words, those are verbs with "interrogative mood", which is used in the formation of both alternative questions and question-word questions:[8,9]

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[8]When discussing cross-linguistic examples, I provide the glosses as in the original sources cited. The only exception is Dyirbal (32–33), which does not have glosses on the original in Dixon (1972). The glosses I give for those examples are adapted from Hagège (2008).

[9]See also Hagège (2008) for further discussion of interrogative *naak* 'be where' and further arguments against considering Kalaallisut a language with interrogative pro-verbs.

(16) Kalaallisut
      Nerivoq
      neri-vu-q
      eat-INDIC-3SG
      'He ate.'

(17) Kalaallisut
      Neriva?
      neri-va-∅
      eat-INT-3SG
      'Did he eat?'

(18) Kalaallisut
      Sumik neriva?
      su-mik neri-va-∅
      what-INS eat-INT-3SG
      'What did he eat?'

A similar pattern is attested in Nivkh (isolate; cf. Gruzdeva 1998; Nedjalkov & Otaina 2013). In this language a suffix like *-lo/-l* is attached to the finite verb in order to mark polarity questions:[10]

(19) Nivkh
      If   pʻrə-ḍ
      s/he come-IND
      'S/he came.'

(20) Nivkh
      If   pʻrə-lo/pʻrə-l?
      s/he come-Q/come-Q
      'Did s/he come?'

Likewise, "interrogative verbs" in Ipai (Yuman; Langdon 1966), Maidu (Maiduan; Shipley 1964), Kwamera (Austronesian; Lindstrom & Lynch 1994) and many other languages, rather than pro-verbs over eventuality types, are just verbal forms restricted to polar question sentences.

So, what we observe in the interrogatives in these languages is not pro-verbs that stand for different types of eventualities but specific verbal forms (specific verbs or verbal particles) employed in interrogatives over participants, adjuncts, or the polarity of the clause, which is a completely different phenomenon.

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[10]Examples from Nedjalkov & Otaina (2013: 116 and 137).

Besides, there are also languages like Lavukaleve (Central Solomons). This language is also said to be a language with interrogative verbs, but its interrogative predicates have a very specific semantics: rather than expressing queries over types of eventualities, they question the location of them. For instance, consider (21) and (22) where in the former the locative is expressed with an adjunct and in the latter with a verb (from Terrill 2003: 457 and 460):

(21) Lavukaleve
le inu ria   ngoa me-m   inu
but 2sg where stay HAB-SG.M 2sg
'But where do you live?'

(22) Lavukaleve
me-kalam vasia-m
2PL-father be.where-SG.M
'Where is your(pl.) father?'

A similar thing happens in Puyuma (Austronesian), a language that has two verbal interrogatives *kuda* 'how' and *muama* 'why', but none of them questions the nature of the eventuality (Teng 2007). And actually, this is a very common pattern present in languages ranging from Makalero (Trans-New Guinea; see Huber 2011), to Wayuu (Arawakan; see Guerreiro et al. 2010), Atayal (Austronesian; see Huang 1996) and many other languages. What we see is that very often the purported interrogative verb of a language does not question the nature of the eventuality itself but its location, causes, etc. Thus, they do not contradict the generalization in (9).

4.2 Syntagmatic structure

The nature of "interrogative verbs" in other languages is not very clear. For instance, Hagège (2008: 2) treats Mandarin *gànmà* in (23) as atomic, arguing that this makes it an interrogative verb. However, this is debatable: Luo (2016: 169) argues that at least in Tianjin Mandarin, *gànmà* is straightforwardly analyzable as composed of *gàn* 'do' and *mà* 'what', which, actually can appear freely and as a modifier, as in (23) and (24):

(23) Tianjin Mandarin
ní zāi gàn mà   ne?
2sg PROG do   what Q
'What are you doing?'

(24) Tianjin Mandarin
      mà   dier?
      what place
      'Where?'

But rather than a idiosyncrasy of Tianjin Mandarin, this is a more general pattern: a similar situation is found in Yongxin Gan (Sino-Tibetan), where *zū* 'do' and *guá* 'what' are merged into *zuá* 'do what' (Luo 2016: 170):

(25) Yongxin Gan
      jin tɕʰei kie(taŋ) tsua?
      2SG PROG here   do.what
      'What are you doing here?'

Luo (2016: 170, 5n. 7) further notes that such a morpho-phonological merger

> occurs only in the dialect spoken in the townships Wenzhu, Gaoxi, Longtian, and part of Shashi, not in the dialect spoken in the country town (Hechuan Township) and nearby, where 'do what' is more frequently pronounced as *tsu ga*, and *ga* 'what' is an (analyzable) object of the verb *tsu* 'do'.

And such a pattern is common in Sinitic languages (cf. e.g. Chongqing Mandarin *zuǎzi* 'do what' from *zuo* 'do' and *sazi* 'what').

Besides, this is also the case of languages of different families and types such as Huallaga Quechua with *imana* 'do what' composed of *ima* 'what' and *na-* 'do' (Weber 1989), Wikchamni (Yokuts) with *hawit* composed of *ha* 'what' and *witi* 'say', 'do' (Gamble 1978), Mian (Trans-New Guinea) where *fatnà* 'do what' is probably composed of *fàb* 'where, what' and a finite verb form of *na* 'do' (see Fedden 2011), Chemehuevi (Uto-Aztecan) *hagani*, which is composed of the interrogative stem *haga* and the suffix *-ni* "most certainly relatable to *uni-* 'do'" (Press 1979: 89), or the Oceanic language Mavea, where *iseve* 'do what' seems to be composed of *sa* 'what', and *v̈e* 'make' (Guérin 2011: 312, fn. 46).[11]

Also, Udihe (Tungusic) has been analyzed as a language with an interrogative pro-verb, but the evidence of this language is not very clear: Nikolaeva & Tolskaya (2001: 352–353, 802) say that its pro-verb *ja-/i-* may occur with interrogative object pronouns, where it only means 'do'; see (26) and (27):

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[11]Besides, other languages such as Baure (Arawak) resort to the nominalization of a dummy verb 'do' that can also be employed in declaratives meaning 'say' (Danielsen 2007).

(26) Udihe
J'e-we   ja:-i?
what-ACC PROV.PST-2SG
'What were you doing?'

(27) Udihe
Si j'e-we   ja-zaŋa-i?
you what-ACC PROV-FUT-2SG
'What will you do?'

But it also may appear with a different nominal in reflexive accompanied by
ono 'how' (28), or independently, meaning 'do what' (29):

(28) Udihe
Ono ja:-i   mä:usa-i?
how PROV.PST-2SG.F gun-REFL
'What did you do with your gun?'

(29) Udihe
Ono ñixe-ze-mi bi i:-te-mi-ne?
how do-SBJV-1SG me PROV-PERM-1SG-CNTR
'How shall I do (it), what shall I do?'

Furthermore it also has a non-interrogative indefinite use, as shown in (30):

(30) Udihe
Emiŋe sita-i   muñeli:-ni, e-ini-de   olokto-won-o, e-ini-de
mother child-1SG sorry-3SG   NEG-3SG-FOC cook-CAUS-EP NEG-3SG-FOC
ja-wan-a.
PROV-CAUS-EP
'The mother feels sorry for her daughter, she does not force her to cook,
she does not force her to do anything.'

All in all, we cannot conclude that these are genuine interrogative verbs.

4.3 Restricted syntax and loaded semantics

Last, there are some languages that do seem to have interrogative verbs that ask
about the event at stake, but I would like to argue that rather than being agnostic
regarding the eventuality type, they presuppose specific argument structures and
are, therefore, quite restricted in their use.

For instance, Caviñena (Tacanan) has an interrogative verb *a(i) ju-* translated as 'do what', which is restricted to intransitive clauses (Guillaume 2008). And the same seems to be the case in Mapudungun (Araucanian) with interrogative verb *chum-* (de Augusta 1903; Smeets 2007), in Evenki (Tungusic) with *e:-* (Nedjalkov 1997), or in Mongolic Buryat *yaa-* (Skribnik 2003), Khalkha *yaa-* (Svantesson 2003), Kalmuck *yagh-* (Bläsing 2003), and Bonan *yangge-* (Hugjiltu 2003).[12] This is also the case of Melanesian Tinrin *trò*, which Osumi (1995: 229) describes as asking about "a subject's problematic situation" and where "something is wrong with the subject and the speaker is concerned about the matter. The subject cannot be in the first person" (Osumi 1995: 233), or in Wangkajunga (Pama-Nyungan) *wanjal-arri* (Jones 2011) or in Erromangan (Austronesian) *owo*, which "normally appears in a structurally minimal clause with no accompanying words" (Crowley 1998: 238), as in (31):[13]

(31)   Erromangan
        Kem-awo?
        2SG:PRS-MR:do.what
        'What are you doing?'

Other languages have different interrogative pro-verbs for intransitive and transitive predicates. This is the case, for instance, of languages like Dyirbal (Pama-Nyungan), with intransitive *wiyamay* and transitive *wiyamal* (Dixon 1972: 55):[14]

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[12] Among the Mongolic languages, Shira Yughur seems to be an exception in having two interrogative verbs: *yima-gi* 'to do what' and *yaa-gi* 'to do how' (Nugteren 2003). Other Mongolic languages such as Dagur, Ordos, Oirat, Moghol, Mongghul, Mangghuer, or Santa are not reported to have interrogative verbs (see the works in Janhunen 2003).

[13] Gumbaynggir (Pama-Nyungan) is analyzed by Eades (1979) as having just one interrogative verb that "is transitive and appears to mean 'do what?' or 'what's the matter?'" (Eades 1979: 302–303), but the example she gives (i) does not have any direct object, and neither the structure nor the interpretation of the construction is clearly transitive (also, the gloss she provides for the verb (INTR.VB-PST) also suggests that it is really an intransitive verb):

    (i)   Gumbaynggir
          ɟira-ŋ   ŋi:nda ga:gal-a
          INTR.VB-PST 2SG.A   beach-LOC
          'What was wrong with you at the beach?' *or* 'What were you doing at the beach?'

[14] *wiyamay* loses its final *-y* before *-ɲ* in (32) and *wiyamal* loses its final *-l* before *-n* in (33). These verbs can also be used adverbially with a different interpretation.

(32) Dyirbal
    bayi   yaɽa   wiyama-ŋu?
    CL.NOM man.NOM do.what-UT.INTR
    'What was man doing?'

(33) Dyirbal
    ŋinda   bayi   yaɽa   wiyama-n?
    2SG.ERG CL.NOM man.NOM do.what-UT.TR
    'What did you do to man?'

A similar pattern is observed for instance in Vitu (Austronesian), with a distinction between *(ku)ziha* for intransitives, and *kuzihania/kuzingania* for transitives (van den Berg & Bachet 2006), in Kiribati (Austronesian) with *aera* (intransitive) *vs. iraana* (transitive) (Groves et al. 1985: 82), in Pitta-Pitta (Pama-Nyungan) with *miṇakuri* (intransitive) *vs. miṇakana* (transitive) (Blake 1979), or in languages such as Motuna (Papuan), where the interrogative verb *jeengo-* takes middle voice in intransitives and active voice in transitives (Onishi 1994) or in Martuthunira (Pama-Nyungan) where interrogative verbs are built upon the basis *whartu* 'what' by the addition of either the inchoative *-npa-∅* or causative/factitative *-ma-L* (Dench 1994). And, actually, this is quite a common pattern, available from Chuckchee (Chukotko-Kamchatkan; Spencer 1999; Dunn 1999) or Kharia (Austroasiatic; Peterson 2010) to a wide range of Oceanic and Australian languages that employ voice or "valency augmenting" morphemes.

The only language in Hagège's (2008) typology that he classifies as allowing intransitive, transitive, and ditransitive constructions with interrogative verbs is Nêlêmwa (Austronesian), but the data discussed in Bril (2002; 2004) shows that the same verbal form cannot participate in any type of argument structure. In fact, the interrogative verb of Nêlêmwa is not a verb that questions the nature of the eventivity itself. It is a manner-questioning verb, thus similar to the patterns reviewed in §4.1.[15] What is more, Nêlêmwa – as is the case in many Oceanic languages – employs particular suffixes for augmenting the valency of a verb so that different verbal forms are associated to different argument structures and thematic relations. Thus, the form of the interrogative verb *kaamwa?* 'to do/proceed how', which apparently is employed in intransitive clauses and transitive clauses with a [−ANIMATE] object (34–35), is changed into *kaamwi?* in transitive constructions with a [+ANIMATE] direct object (36), and to *kaamwale?* in transitive constructions with a [−HUMAN] direct object and a specific reading of preparing something or proceeding to do something (37):[16]

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[15]Nêlêmwa has at least two other interrogative verbs: *iva?* 'to be where' and *shuva* 'to be how', apparently both restricted to intransitive environments.

[16]All examples taken from Bril (2002: 50).

(34) Nêlêmwa
na kaamwa bwat hleny?
1SG do.how box this.DEI
'What do I do with this box?'

(35) Nêlêmwa
na kaamwa me na tami bwat hleny?
1SG do.how DEPEND 1SG open box this.DEI
'How do I do to open this box?'

(36) Nêlêmwa
co u kaamwi thaamwa hleny?
2SG ACC do.how woman this.DEI
'What did you do to this woman?'

(37) Nêlêmwa
hâ kaamwa-le nox-ena?
1PL.INCL do.how-TR fish-this.DEI
'How do we prepare this fish?'

So, *kaaamwa* does not question the nature of the eventuality itself and furthermore, we see that the verb changes with the argument structure.

This is also something we can observe in Formosan languages like Kavalan (Austronesian; Lin 2012: 186). In this language the interrogative verb *quni* can get different readings ('do what'; 'do how'; 'go where') in different environments: in (38) it gets the 'go where' reading in an intransitive construction (where the subject gets the θ-role of a theme), and in (39) it gets the 'do what' reading associated to an agent subject but, crucially, there the verb is marked with the agent voice (AV) marker:

(38) Kavalan
quni=pa=isu?
go.where=FUT=2SG.ABS
'Where are you going?'

(39) Kavalan
q⟨um⟩uni=isu tangi?
⟨AV⟩do.what=2SG.ABS just.now
'What were you doing just now?'

And a similar thing happens in Amis (Austronesian), where *maan* 'what' can be employed as a verb with voice markers (*ma-, mi-, -en*, etc.) co-varying with the argument structure (Lin 2012: 192):

(40)   Amis

Ma-maan   cingra?

AV-what.happen 2SG.ABS

'What happened to him?'

(41)   Amis

Mi-maan   ci-Panay?

AV-do.what NCM-PN

'What is Panay doing?'

(42)   Amis

Na maan-en   isu   ku-ra   wacu?

PST do.what-PV 2SG.ERG ABS-that dog

'What did you do to that dog?'

I shall conclude from this that when verbs question the type of eventuality, they tend to do so within a restricted set of options sharing an essential argument structure.[17] This means that when a given language allows a question such as (43a), its logical form will not be of the type in (43b), roughly, "What type of eventuality are you participating in such that you are experiencing it or undergoing it or performing it or initializing it, etc?" but the more precise (43c), roughly, "What are you doing?":

(43)   a.   *Whxyzing* you?

b.   * $\exists$e [_____(e, you) & ?(e) & Present(e)]

c. $\exists$e [Agent(e, you) & Action(e, ?) & Present(e)]

Likewise, rather than the structurally vague (44b), a question such as (44a) (=8) will have a logical form along the lines in (44c); roughly, "What type of action did Brutus do to Cæsar?":

(44)   a.   *Whxyzed* Brutus Cæsar?

b.   * $\exists$e [_____(e, Brutus) & ?(e) & Past(e) & _____(e, Cæsar]

c. $\exists$e [Agent(e, Brutus) & Action(e, ?) & Past(e) & Theme(e, Cæsar)]

Again, note that this is not a matter of informativity of the question: there is nothing wrong informationally with a question with higher order grammatical terms such as "What type of eventuality happened such that it has Brutus

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[17]The fact that in many languages interrogative verbs are morphologically related to indefinite and deictic elements (cf. Hagège 2008) also supports the idea that these verbs imply a large semantic/discursive load.

as external argument and Cæsar as internal argument?". It is just not natural language.

This state of affairs contrasts sharply with the case of non-interrogative pro-verbs like the aforementioned Basque *zertu* (cf. footnote 2), which are relatively abundant cross-linguistically. Non-interrogative pro-verbs are typically employ-ed when encountering difficulties with word retrieval, i.e. in situations where the speaker construes a determinate argument structure (with a proper θ-role assignment, etc.) but fails to retrieve the PF exponent of the corresponding verb.

5   A further prediction: Interrogative adpositions?

The analysis proposed in §3 is based on the idea that natural language cannot question about predicates of eventualities because that would generate ill-formed representations for the C–I interface. Now, this makes a further prediction: the impossibility should be extensible to other analogous constructions whose se-mantic contribution is the introduction of a predicate of eventualities. I think that this is the case, as shown by the apparent cross-linguistic lack of interroga-tive adpositions, for instance.

What is the semantic contribution of an adposition? Davidson (1967) originally proposed that a sentence like (45a) should be characterized as having the logical form in (45b), with *to* introducing a predicate of events that is conjoined to the denotation of the verb:[18]

(45)   a. I flew my spaceship to the morning star.
       b. ∃e[flying(I, my spaceship, e) & to(the morning star, e) & Past(e)]

But as argued by Larson & Segal (1995), this seems to imply that the event *e* stands in the 'to' relation to the morning star; which is quite obscure. Likewise, sentence (46a) with a neo-Davidsonian logical form along the lines in (46b) would imply that there exists some kind of "with-a-knife" event, again not very sensible:

(46)   a. Brutus stabbed Cæsar with a knife.
       b. ∃e[Agent(e, Brutus) & Stabbing(e) & Past(e) & Patient(e, Cæsar) & with-a-knife(e)]

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[18]Davidson (1967) uses triadic event predicates such as *flying(I, my spaceship, e)* with an "extra argument" for the event variable for transitive verbs. The neo-Davidsonian trend since Cas-tañeda (1967) on the other hand advocates for separation of the arguments from the semantic contribution of the verb and their introduction via predicate conjunction. In this example, I stick to the original Davidsonian formulation.

Therefore, Larson & Segal (1995) propose to see prepositions such as *to* and *with* as expressing roles that can be played by participants in eventualities. For instance, *with* in (46a) expresses the Instrument through which an action is accomplished, therefore, they argue that its logical form representation should be along the lines in (47):

(47)   ∃e[Agent(e, Brutus) & Stabbing(e) & Past(e) & Patient(e, Cæsar) & Instrument(e, a-knife)]

This would be the general semantic contribution of adjuncts, which can introduce different roles such as Goals, Sources, Experiencers, etc. We can immediately see that this move paves the way for an explanation of why there are no adpositional *wh*-words cross-linguistically: just like an interrogative verb would create a C–I illegibility, the same will happen with an interrogative adposition.

As an illustration, an imaginary example of an interrogative adposition would be along the lines in (48a), with the interrogative preposition *whxyz*, and its corresponding logical form in (48b):

(48)   a.   * *Whxyz* a knife did Brutus stab Cæsar?
       b.   * ∃e[Agent(e, Brutus) & Stabbing(e) & Past(e) & Patient(e, Cæsar) & ?(e, a-knife)]

Again, it is difficult to express in plain English what something like (48a) is intended to mean (again, this is my point), but it should be understood as questioning an overarching question about the role and/or the relation and/or the place, etc. of the knife within the stabbing of Cæsar by Brutus. Its ungrammaticality, however, contrasts with the perfect grammaticality of a natural question on an adjunct like (49a), with its corresponding logical form in (49b):

(49)   a.   What did Brutus stab Cæsar with?
       b.   ∃e[Agent(e, Brutus) & Stabbing(e) & Past(e) & Patient(e, Cæsar) & Instrument(e, ?)]

Example (49a) is perfectly grammatical, since it expresses a question over a variable; example (48a) on the other hand is a question qua predication, and it is as such incongruent.

In a nutshell then, the hypothesis presented in §3 also allows to account for the lack of adpositional *wh*-words and it is also extensible to other cross-linguistic lacunæ, like the lack of interrogative tense markers, modalities, etc.

6 Conclusions

In recent years, theoretical (bio-)linguistics has identified a range of different factors affecting the shape of I-languages (Chomsky 2005; Berwick et al. 2011; Roberts 2012 for discussion). The idea that I proposed in this article is that a part of universal properties of natural languages may be due to legibility conditions imposed by language external components. I believe that by researching the nature and constraints of such components we can gain further understanding of the limits and patterns of cross-linguistic variability.

Abbreviations

1	first person	INT	interrogative
2	second person	INTR	intransitive
3	third person	LF	logical form
A	agent-like argument of a canonical transitive verb	LOC	locative
ABS	absolutive	M	masculine
ACC	accusative	MR	modified root
AV	active/actor voice	NCM	non-common noun marker
CAUS	causative	NEG	negation
CL	clitic	NOM	nominative
CNTR	contrastive focus particle	PERM	permissive
DEI	deictic	PL	plural
DEPEND	dependency morpheme	PN	proper noun
EP	epenthetic vowel	PROG	progressive
ERG	ergative	PROV	pro-verb
F	feminine	PRS	present
FOC	focus	PST	past
FUT	future	PV	passive voice
HAB	habitual aspect	Q	question particle
INCL	inclusive	REFL	reflexive
IND	indicative	SBJV	subjunctive
INDIC	indicative	SG	singular
INS	instrumental	TR	transitive
		UT	unmarked tense

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