"One tool to rule them all"? An integrated model of the QuD for Hurford Sentences[1]

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Abstract. Katzir and Singh (2015) proposed a model of oddness whereby felicitous sentences should constitute possible answers to a "good" Question under Discussion (QuD, Roberts, 1996, i.a.). Following this insight, we account for a range of challenging Hurford Sentences (Hurford, 1974; Singh, 2008b; Marty and Romoli, 2022; Mandelkern and Romoli, 2018), *via* a compositional machinery pairing assertions with implicit QuDs, complemented with two pragmatic principles (RELEVANCE, REDUNDANCY) restated in the QuD-domain. This approach motivates the use of QuDs as a necessary, general, and explanatory tool in pragmatics.

Keywords: redundancy, relevance, oddness, question under discussion

1. Introduction

Hurford Disjunctions (henceforth **HD**, Hurford, 1974), exemplified in (1), feature contextually entailing disjuncts ($p^+ \vDash_c p$), and are generally odd regardless of the order of their disjuncts.[2]

(1) a. # SuB29 will take place in Noto[3] or Italy. $p^+ \vee p$
b. # SuB29 will take place in Italy or Noto. $p \vee p^+$

Hurford Conditionals (henceforth **HC**, Mandelkern and Romoli, 2018), exemplified in (2), are isomorphic to (1a) granted the *or-to-if* tautology and double-negation elimination (cf. derivations in (3)). Specifically, isomorphy between two logical forms is defined as an equality of parse *modulo* a variable change preserving logical relations (cf. (4)). Yet, despite their isomorphy with (1a), (2a) and (2b) exhibit a crisp oddness asymmetry. Descriptively, it seems that the weaker item must be the antecedent, while the negated stronger item must be the consequent.

(2) a. # If SuB29 will not take place in Noto, it will take place in Italy. $\neg p^+ \rightarrow p$
b. If SuB29 will take place in Italy, it will not take place in Noto. $p \rightarrow \neg p^+$

(3) *Deriving HCs from the HD (1a).*
a. $(2a) \equiv \neg p^+ \rightarrow p \overset{\clubsuit}{\equiv} \neg(\neg p^+) \vee p \overset{\spadesuit}{\equiv} p^+ \vee p \approxeq (1a)$
b. $(2b) \equiv p \rightarrow \neg p^+ \overset{\clubsuit}{\equiv} (\neg p) \vee (\neg p^+) \overset{\heartsuit}{\equiv} q^+ \vee q \approxeq (1a)$
$\clubsuit$: *or-to-if* tautology; $\spadesuit$: double-negation elimination;
$\heartsuit$: variable change of the form $\neg p := q^+; \neg p^+ := q$.

(4) *Isomorphy ($\approxeq$) between logical forms.* $x \approxeq y$ iff there is a substitution operation $\mathscr{S}$ targeting atomic propositions and preserving the logical relations between the elements

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[2]When the two disjuncts are the same modulo scalar expressions (e.g. ⟨*some*, *all*⟩) HDs *may* be rescued from infelicity Gazdar, 1979; Singh, 2008a; Fox and Spector, 2018; Hénot-Mortier, 2023 i.a.). This paper does not cover such cases, but Hénot-Mortier (2024) and Hénot-Mortier (to appear) provide an overview of the challenges raised by "scalar" Hurford Sentences, and propose an account elaborating on the framework introduced here.

[3]Noto is located in Italy and is where the main session of SuB29 was organized.

in its domain ($aRb \iff \mathscr{S}(a)R\mathscr{S}(b)$, where R denotes entailment, contradiction, or independence) s.t. x and $\mathscr{S}(y)$ have same parse.

Kalomoiros (2024) proposed the first solution to both (1) and (2), based on the idea that overt negation has a special status when evaluating oddness. This paper argues for an alternative view, elaborating on the idea that felicitous assertions are "good answers to good questions" (Katzir and Singh, 2015), and assigning a central role to the degree of granularity conveyed by propositions. It is based on two core ingredients. The first is that assertions evoke the potential QuDs they could answer (in the spirit of Büring, 2003; Zhang, 2022). This process is compositional and sensitive to the assertion's conveyed granularity. The second ingredient, is that some sentence-QuD pairings may violate specific pragmatic constraints, e.g. RELEVANCE and REDUNDANCY, that the paper reimplements. This will predict the HDs in (1) to be redundant, due to them evoking questions that are also evoked by their stronger disjunct. The HC in (2a) will be predicted irrelevant, because *France* (consequent) evokes a by-country partition whose *France* cell is not fully inside the *not Paris* domain defined by the antecedent (some *France*-worlds being *Paris*-worlds). Lastly, the HC in (2b) will be correctly ruled-in, because *not Paris* (consequent) can evoke a by-city partition whose cells are each fully inside, or fully outside, the *France*-domain defined by the antecedent.

The rest of this paper is structured as follows. Section 2 describes Kalomoiros' account of HDs and HCs, outlining its potential limitations. Section 3 motivates a more elaborate model of questions that structurally implements the concept of conveyed granularity. Section 4 captures HCs, by introducing a compositional machinery deriving potential QuDs out of assertions, along with a novel RELEVANCE constraint targeting QuD derivation. Section 5 captures HDs (and variants thereof) by extending the QuD machinery to disjunctions and redefining REDUNDANCY on LF-QuD pairs. Section 6 concludes and outlines remaining issues and questions.

2. Existing account

Mandelkern and Romoli (2018) show that HCs are problematic for virtually all accounts of HDs and their variants proposed before Kalomoiros (2024). We now review this recent proposal.

2.1. Super-Redundancy

Kalomoiros' SUPER-REDUNDANCY, defined in (5), elaborates on Katzir and Singh (2014). Roughly, a sentence S is super-redundant if it features a binary operation taking a constituent C as argument, and moreover there is no way of strengthening C to C^+ that would make the resulting sentence S^+ non-redundant (i.e., non-equivalent to its counterpart where C^+ got deleted).

(5) SUPER-REDUNDANCY. A sentence S is infelicitous if it contains $C * C'$ or $C' * C$, with $*$ a binary operation, s.t. $(S)^-_C$ is defined and for all D, $(S)^-_C \equiv S_{Str(C,D)}$. In this definition:

- $(S)^-_C$ refers to S where C got deleted;
- $Str(C,D)$ refers to a strengthening of C with D, defined inductively and whose key property is that it commutes with negation ($Str(\neg\alpha,D) = \neg(Str(\alpha,D))$), as well as with binary operators ($Str(O(\alpha,\beta),D) = O(Str(\alpha,D),Str(\beta,D))$);
- $S_{Str(C,D)}$ refers to S where C is replaced by $Str(C,D)$.

(5) predicts the HDs in (1) to be deviant: given $S =$(1a-1b) and $C = p^+$, no matter what D

is, $S_{Str(C,D)} = (p^+ \wedge D) \vee p$ is equivalent to $p = (S)^-_C$. Assuming implications are material, (5) also predicts the HC (2a) to be deviant: given $C = \neg p^+$, no matter what D is, $S_{Str(C,D)} = \neg(p^+ \wedge D) \rightarrow p \equiv (p^+ \wedge D) \vee p$, which is equivalent to $p = (S)^-_C$. In that case, it was crucial that the local strengthening of $C = p^+$ remained conjunctive under negation. (2b) on the other hand, is predicted to be fine. (2b) features two candidates for C: p and $\neg p^+$. Given $C = p$, and setting D to $\bot$, we have, $S_{Str(C,D)} = (p \wedge \bot) \rightarrow \neg p^+ \equiv \neg p \vee \top \vee \neg p^+ \equiv \top$ which is not equivalent to $\neg p^+ = (S)^-_C$. Given $C = \neg p^+$, and setting D to $\top$, we have $S_{Str(C,D)} = p \rightarrow \neg(p^+ \wedge \top) \equiv \neg p \vee \neg p^+$ which is not equivalent to $p = (S)^-_C$. So (2b) is not super-redundant.

This account extends to strict (yet not variably strict) conditionals, and constitutes the first approach to oddness capturing *both* HDs and HCs. However, while earlier approaches to REDUNDANCY (Meyer, 2013; Katzir and Singh, 2014; Mayr and Romoli, 2016 i.a.) link it to the concept of BREVITY (Grice, 1975), it remains unclear, under the SUPER-REDUNDANCY view, why the notion of local strengthening (*Str*) is defined the way it is (in particular when it comes to its commuting with negation), and why it should be so central in deriving oddness. We now present data suggesting that overt negation may not be the only source of the contrast in (2).

2.2. Is overt negation really the culprit in HCs?

SUPER-REDUNDANCY is motivated by the observation that negated HDs, like (6), appear felicitous. (6) however, is significantly improved by focus (7a), yet made worse by removing *either* (7b), or swapping disjuncts (7c). Moreover, (7b-7c) can be repaired by adding *at all* to the stronger disjunct. The pattern gets even crisper if disjuncts are picked to be more parallel[4]

(6) Context (taken from Kalomoiros, 2024): we go into John's office and see a full pack of Marlboros in the dustbin. We are entertaining hypotheses about what's going on.
John either doesn't smoke or he doesn't smoke Marlboros. $(\neg p) \vee (\neg p^+)$

(7) a. John doesn't smoke or doesn't smoke MARLBOROS.
b. John doesn't smoke $^?$(at all) or doesn't smoke Marlboros.
c. John either doesn't smoke Marlboros or he doesn't smoke $^\#$(at all).

These data suggest that independent pragmatic mechanism(s) may force the weaker disjunct to contradict the stronger one in negated HDs. In particular, *John does not smoke MARLBOROS* seems to imply John smokes non-Marlboro cigarettes, i.e. smokes. *Either*, which tends to force exclusivity between disjuncts (Nicolae et al., 2025 i.a.), may have the same effect. Lastly, the felicity of (6) seems only guaranteed when a precise context is set up; but doing so may force a specific kind of QuD, and such a move was shown to improve non-negated HDs just as well (Haslinger, 2023). While these observations do not fully explain the complex pattern of repairs in (7), they appear more in line with an analysis which would not assign a key role to overt

[4] For instance, instead of having V and V+NP as disjuncts, we can have V+NP and V+NP$^+$, with $[\![\mathrm{NP}^+]\!] \subset [\![\mathrm{NP}]\!]$). This is done in (i) whose variants (analog to (7a-7c)) are given in (ii).

(i) ? John either doesn't own a dog or he doesn't own a lab.

(ii) a. John doesn't own a dog or doesn't own a LAB.
b. John doesn't own a dog $^{??}$(at all) or doesn't own a lab.
c. John either doesn't own a lab or he doesn't own a dog $^\#$(at all).

negation in HDs and HCs, but instead, would interact with pragmatic processes themselves influenced by negation. In our alternative proposal, we will in fact suggest that *granularity* differences (e.g., *Paris* being finer-grained than *France*), drive the contrast in (2).

Lastly, it is worth mentioning that SUPER-REDUNDANCY is challenged by another family of sentences, obtained from the structure $p \vee p \vee q$ solely through the *or-to-if* tautology. Such sentences, for instance $p \vee (\neg p \rightarrow q)$ vs. $\#p \vee (\neg q \rightarrow p)$, display crisp differences in pragmatic oddness, yet their felicity profile is not fully captured by SUPER-REDUNDANCY, whether conditionals are seen as material or strict (Hénot-Mortier, to appear). We now introduce a QuD-driven model of oddness, which captures these sentences, along with HDs and HCs.

3. Linking assertions to questions

3.1. Overview

To account for HDs and HCs, we propose a compositional machinery linking the Logical Forms of assertions to the implicit QuDs (Van Kuppevelt, 1995; Roberts, 1996 i.a.) such structures may answer (Büring, 2003; Onea, 2016; Onea, 2019; Riester, 2019; Zhang, 2022 i.a.). A sentence may be paired with multiple implicit QuDs; following Katzir and Singh (2015), we assume a sentence is odd if it cannot be felicitously paired with *any* QuD. This is stated in (8).

(8) *Oddness of a sentence.* A sentence S is odd if any QuD it evokes is odd given S. A QuD Q is odd given S if (S, Q) violates a pragmatic well-formedness constraint, e.g. RELEVANCE, or REDUNDANCY (tbd).

A QuD-driven model of oddness therefore needs to integrate what sentences mean, but also what kind of information structure they evoke. Unlike Inquisitive Semantics (Mascarenhas, 2008; Ciardelli, 2009; Groenendijk and Roelofsen, 2009; Ciardelli and Roelofsen, 2017; Ciardelli et al., 2018; Zhang, to appear), which proposes a *unified* view of questions and assertions at the semantic level, the current view supports a form of inquisitive *pragmatics*: sentences are still assigned a truth-conditional/intensional meaning, but are also endowed with an inquisitive contribution at a "pragmatic" level of interpretation. We now review and update the standard semantics assigned to questions, and discuss the interaction between questions and granularity.

3.2. Towards a granularity-sensitive model of (implicit) questions

Questions are usually seen as the set of their potential answers (Hamblin, 1973), which typically form partitions of the Context Set (henceforth **CS**, Stalnaker, 1974). Given a CS S and a set of propositions P, the partition of S induced by P (noted $\mathscr{P}(S, P)$) can be generated by grouping together the worlds of S which "agree" on all $p \in P$. The questions *evoked* by a proposition p can then be defined as the partitions generated, either by p alone ($P = \{p\}$), or by p and relevant focus alternatives to p ($P = \mathscr{A}_p$, Rooth, 1992; Fox and Katzir, 2011 i.a.). If p is not settled in the CS, the former kind of partition takes the form $\{p, \neg p\}$ and amounts to the question of *whether* p. If $\mathscr{A}_p$ contains mutually exclusive, possible propositions covering the CS, then the partition induced by $\mathscr{A}_p$ on the CS is simply $\mathscr{A}_p$, and can be interpreted as a *wh*-question inquiring about p's focused material. For simplicity, this paper will focus on this "exclusive" subcase.

When determining evoked questions, $\mathscr{A}_p$ should be constrained in terms of granularity. For instance, $\mathscr{A}_p$ has to reflect the intuition that *SuB29 will take place in Noto* and *SuB29 will take place in Italy* preferentially answer different kinds of questions: *In which city will SuB29 take place?* vs. *In which country will SuB29 taken place?* To capture this, one can assume $\mathscr{A}_p$

should only contain *same-granularity* alternatives to *p*. This models the idea that more specific assertions evoke more specific questions, but does not directly encode that more specific questions form *refinements* of less-specific ones. For instance, if *SuB29 will take place in Noto* is taken to represent a by-city partition of the CS, this partition will correctly model the question *In which city will SuB29 take place?*, but will not incorporate the idea that specific city-cells can be grouped together to form country-cells–leading to a coarser-grained question.

Building on Büring (2003); Ippolito (2019); Zhang (2022), we now introduce a more sophisticated model of (implicit) QuDs, incorporating intuitions about QuD granularity. This will eventually predict that isomorphic sentences, e.g. the HCs in (2), may “package” information differently from one another. (9) defines questions as parse trees–or recursive partitions–of the CS, building on Ippolito (2019)’s *Structured Sets of Alternatives*.

(9) *Question-trees (**Qtrees**).* Qtrees are trees whose nodes are all subsets of the CS and s.t.:
- Their root generally[5] denotes the CS;
- Any intermediate node is partitioned by the set of its children.

The root of a Qtree can be interpreted as a tautology over the CS. Intermediate nodes typically represent non-maximal answers, while leaves typically represent maximal answers.[6] By construction, leaves form a partition of the CS, and as such recover the “standard” concept of question. Additionally, any subtree rooted in a node *N* can be understood as conditional question taking *N* for granted. A path from the root to any node *N* thus constitutes a strategy of inquiry–sequence of conditional questions–leading to the answer denoted by *N*.

Qtrees are structurally rich enough to reflect the idea that *SuB29 will take place in Noto* primarily answers a *which city?* kind of question (assuming the leaves of the evoked Qtree represent cities), but also the intuition that a *which city?* question constitutes a refinement of a *which country?* question (assuming the evoked Qtree features an intermediate “country”-layer). This is represented in Figure 1. Removing all the leaves from this Qtree leads to the “coarser-grained” Qtree in Figure 2, which represents a *which country?* question, and seems intuitively compatible with *SuB29 will take place in Italy*.

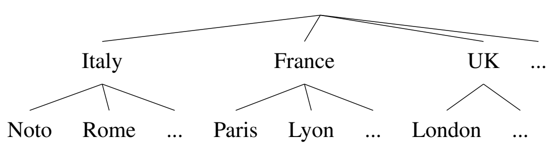


Figure 1: The kind of Qtree an LF like *SuB29 will take place in Noto* could evoke.

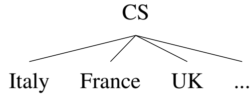


Figure 2: The kind of Qtree an LF like *SuB29 will take place in Italy* could evoke.

We will say that Qtree 1 *refines* Qtree 2. (10) provides a more general definition of this con-

[5]We assume this holds for the implicit QuDs of presuppositionless sentences–here, all Qtrees will thus have the same CS as root. In dealing with presuppositional sentences, Hénot-Mortier (to appear) proposes that accommodating *p* intersects each node of the original Qtree with *p*.

[6]We will see in this paper that maximal answers may end up at an intermediate level, due to the “inquisitive” effect of disjunction. Hénot-Mortier (to appear) further discusses how operators like *but* and *at least* may influence the position of maximal answers in Qtrees.

cept. Entailing assertions conveying different degrees of granularity, will typically evoke Qtrees standing in a refinement relation. Thus, Qtrees "structurally" realize the concept of granularity.

(10) *Qtree Refinement*. A Qtree T is a refinement of a Qtree T' iff there is a Qtree T'' obtained from T by deleting a subset of T's subtrees, s.t. T'' and T' have same structure.

The next Section shows that the contrast between the HCs in (2) boils down to the fact that (2b), unlike (2a), has its consequent (*not Paris*) evoke a refinement of its antecedent (*France*). To show this, we will first define Qtrees evoked by simplex LFs, and extend the model inductively to negated and conditional LFs. The above intuition will then be restated as a QuD-driven RELEVANCE constraint.

4. Capturing Hurford Conditionals

4.1. Questions evoked by simplex LFs

We argued that the Qtree in Figure 1 could be evoked by *SuB29 will take place in Noto*. But, in principle, it could also be evoked by *SuB29 will take place in Rome/Paris/London* etc. This is because this Qtree does not keep track of *how* the LF that evoked it, actually answers it. We thus add one more idea to the current Qtree model: when a simplex LF denoting a proposition p (**prejacent**) gets paired with candidate Qtrees, it "flags" the leaves that entail p as maximal true answers. Such **verifying nodes**, defined inductively, form a set $\mathbb{N}^+(T)$ for any Qtree T.

(11) spells out the method deriving candidate Qtrees from simplex LFs. $\mathscr{P}$(CS, P) denotes the partition induced on the CS by a set of propositions P. Roughly, (11) states that a simplex LFs denoting p can evoke three kinds a Qtrees: (i) one partitioning the CS into p and $\neg p$ worlds; (ii) one partitioning the CS according to relevant same-granularity alternatives to p (p included); and (iii) "tiered" Qtrees similar to the one in Figure 1. In tiered Qtrees, the last layer of nodes is generated from same-granularity alternatives to p (similarly to case (ii)), and each intermediate layer is generated by same-granularity alternatives to some proposition that constitutes a coarser-grained alternative to p. Layers are arranged by increasing granularity from the top-down, and their nodes/cells are properly connected based on the subset relation.

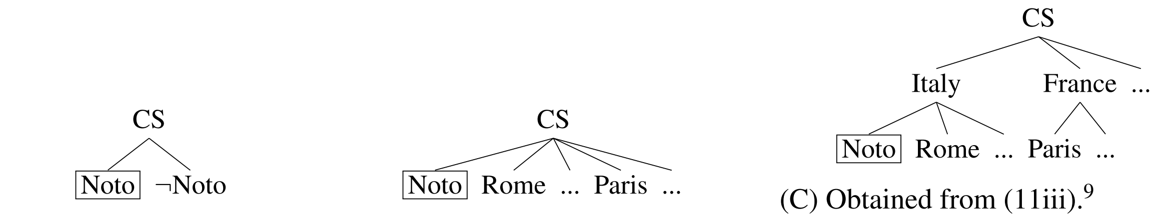
(11) *Qtrees for simplex LFs.* Let X be a simplex LF denoting p, not settled in the CS. Let $\mathscr{A}_{p,X}$ be a set of relevant focus alternatives to p (based on the LF X). For any $q \in \mathscr{A}_{p,X}$, let $\mathscr{A}^q_{p,X} \subseteq \mathscr{A}_{p,X}$ be the set of alternatives from $\mathscr{A}_{p,X}$ sharing same granularity with q. We assume for simplicity that for any q, $\mathscr{A}^q_{p,X}$ partitions the CS. A Qtree for X is either:
   (i) A depth-1 Qtree whose leaves denote $\mathscr{P}(\text{CS}, \{p\}) = \{p, \neg p\}$
   (ii) A depth-1 Qtree whose leaves denote $\mathscr{P}(\text{CS}, \mathscr{A}^p_{p,X}) = \mathscr{A}^p_{p,X}$.[7]
   (iii) A depth-k Qtree ($k > 1$) constructed in the following way:
   - Formation of a "p-chain" $p_0 = p \subset p_1 \subset ... \subset p_n$ where $p_0 ... p_n$ are all in $\mathscr{A}_{p,X}$ but belong to different granularity tiers: $\mathscr{A}^{p_0}_{p,X} \neq \mathscr{A}^{p_1}_{p,X} \neq ... \neq \mathscr{A}^{p_n}_{p,X}$.
   - Generation of the "layers" of the Qtree, based on the partitions induced by the granularity tiers corresponding to each element of the p-chain: $\left\{\mathscr{P}(CS, \mathscr{A}^{p_i}_{p,X}) \mid i \in [0; n]\right\}$.
   - Determination of the edges between nodes (cells) of adjacent layers (and between the highest layer and the root), based on the subset relation.[8]

[7](ii) may be seen as a subcase of (iii) with the p-chain set to p only.

[8]In certain cases, connecting the nodes in $\mathscr{P}(CS, \mathscr{A}^{p_i}_{p,X})$ to those in $\mathscr{P}(CS, \mathscr{A}^{p_{i+1}}_{p,X})$ according to the subset relation

In any case, $\boxed{\text{verifying nodes}}$ are defined as the set of leaves entailing p.

(11) applies to X^+=*SuB29 will take place in Noto* (denoting p^+) and X=*SuB29 will take place in Italy* (denoting p) in the following way. Same-granularity alternatives to p^+ are $\{\lambda w.$ *SuB29 will take place in L in w* | L is a city$\}$, while same-granularity alternatives to p are $\{\lambda w.$ *SuB29 will take place in L in w* | L is a country$\}$. Moreover, p is a coarser-grained alternative to p^+. This implies that X^+ and X are respectively compatible with the Qtrees in Figures 3 and 4. In such trees, each node denotes the proposition it is labeled after, intersected with the CS.



(A) Obtained from (11i)

(B) Obtained from (11ii)

(C) Obtained from (11iii).[9]
Refines Qtree 4B

Figure 3: Qtrees for X^+=*SuB29 will take place in Noto*. $\boxed{\text{Boxed nodes}}$ are verifying.

(A) Obtained from (11i)

(B) Obtained from (11ii)

Figure 4: Qtrees for X=*SuB29 will take place in Italy*. $\boxed{\text{Boxed nodes}}$ are verifying.

The fact p^+ is finer-grained than p, implies that no Qtree obtained for X refines a Qtree for X^+; but *some* Qtree obtained for X^+ (Qtree 3C), refines *some* Qtree for X (Qtree 4B). This asymmetry will be crucial in explaining the contrast in HCs: felicitous HCs like (2b) are the ones whose antecedent Qtrees *can* be refined by a consequent Qtree; odd HCs like (2a) are the ones whose antecedent Qtrees *cannot* be refined by any consequent Qtree. To precisify this idea, we now assign an "inquisitive" contribution to negation and conditionals.

4.2. Questions evoked by negated LFs

We assume negated LFs evoke questions that are structurally similar to those evoked by their non-negated counterpart. The only difference resides in the set of verifying nodes, which is flipped by negation. This is formalized in (12).

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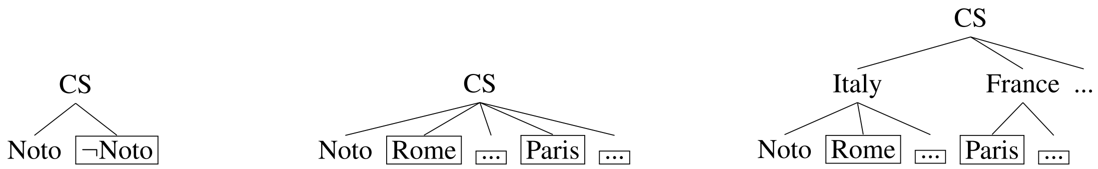
may not create a well-formed Qtree. This can happen if for instance scalar items like $\langle$*some*, *all*$\rangle$ are assumed to have different granularities, and thus generate distinct Qtree layers, namely $\{\exists, \neg\exists\}$ and $\{\forall, \neg\forall\}$. Connecting such layers does not yield a Qtree, because the partition property between nodes and their children ($\neg\exists$–$\neg\forall$; $\exists$–$\forall$) is not preserved. Assuming the tiers are $\{\exists, \neg\exists\}$ and $\{\neg\exists, \exists\wedge\neg\forall, \forall\}$ instead, solves the problem. More generally, these "connectivity" issues can be solved by assuming that the nodes of a Qtree are generated "tier-by-tier", by intersecting each partition $\mathscr{P}(CS, \mathscr{A}_{p,X}^{p_i})$ with all coarser-granularity ones ($\mathscr{P}(CS, \mathscr{A}_{p,X}^{p_j})$ for $j > i$). The final set of nodes is then: $\bigcup_{i\in[0,n]} \mathscr{P}(CS, \mathscr{A}_{p,X}^{p_i}) \cap \left(\bigcap_{j>i} \mathscr{P}(CS, \mathscr{A}_{p,X}^{p_j})\right)$. In this definition, the intersection of two partitions is the partition whose cells are all (non-empty) intersections of pairs of cells from the two input partitions.

[9] Note that in principle more tiers can be added to that kind of Qtree, according to principle (11iii). For simplicity we only consider a city vs. country distinction here. The crucial point is that both X and X^+ are parametrized by the same tiers of same-granularity alternatives, whatever they are.

(12) *Qtrees for negated LFs.* A Qtree $T_\neg$ for $\neg X$ is obtained from a Qtree T for X by:
- retaining T's structure;
- defining $T_\neg$'s verifying nodes as the set of nodes that are *not* verifying in T, but that are at the same level as *some* verifying node in T.[10] If all verifying nodes in T are leaves, then $T_\neg$'s verifying nodes will just be T's non-verifying leaves.

Qtrees corresponding to $\neg X^+$=*SuB29 will not take place in Noto* are given in Figure 5. They are derived by swapping verifying and non-verifying leaves in the Qtrees from Figure 3. Because negation preserves Qtree structure, no Qtree obtained for X will refine a Qtree for $\neg X^+$, while *some* Qtree obtained for $\neg X^+$ (Qtree 5C) will refine *some* Qtree for X (Qtree 4B).



(A) ¬ Qtree 3A (B) ¬ Qtree 3B (C) ¬ Qtree 3C

Figure 5: Qtrees for $\neg X^+$=*SuB29 will not take place in Noto*, derived from Figure 3.

4.3. Questions evoked by conditional LFs

We assume conditional LFs evoke questions pertaining to their consequent, in the domain(s) of the CS where the antecedent holds. (13) and (14) thus define conditional Qtrees as Qtrees evoked by the antecedent of the conditional, but whose verifying nodes get replaced by their intersection with a Qtree evoked by the consequent. Roughly, a consequent Qtree gets "adjoined" to an antecedent Qtrees's verifying nodes, creating a hierarchically ordered sequence of questions. Additionally, verifying nodes in a conditional Qtree are inherited solely from the consequent Qtree. This aligns with the claim that zero-models should be neglected (Aloni, 2022): in our case, the nodes falsifying the antecedent are *not* verifying in the resulting conditional Qtree. (13-14) therefore introduce an asymmetry between antecedent and consequent in the output Qtree, which, together with the granularity considerations raised in the previous Sections, and some concept of RELEVANCE, will capture the oddness asymmetry in HCs.

(13) *Qtrees for conditional LFs.*[11] A Qtree $T_\rightarrow$ for $X \rightarrow Y$ is obtained from a Qtree T_X for X and a Qtree T_Y for Y by:
- replacing each node N of T_X that is in $\mathbb{N}^+(T_X)$ with $N \cap T_Y$ (cf. (14)); returning the result only if it is a Qtree.
- deriving $T_\rightarrow$'s verifying nodes from those of T_Y, *modulo* intersection (cf. (14)).

(14) *Node-Qtree intersection.* If N is a node and T a Qtree, $N \cap T$ is defined as T, where each node gets intersected with N and resulting empty nodes and trivial ("only child") links get removed. $N \cap T$'s verifying nodes are inherited from T: a node in $N \cap T$ is verifying if it coincides with the intersection of N and some verifying node in T.

[10] More formally: $\mathbb{N}^+(T_\neg) = \{N' | N' \notin \mathbb{N}^+(T) \wedge \exists N \in \mathbb{N}^+(T).\ d(N', T_\neg) = d(N, T)\}$, where $d(N,T)$ denotes the depth of a node N in a tree T.

We now show how (13-14) apply to the HCs in (2). First, (14) predicts that intersecting a city-level node with a country-level Qtree returns the city-level node. This is exemplified in Figure 6 and generalized in (15).

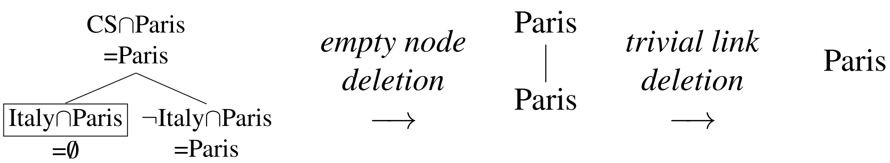
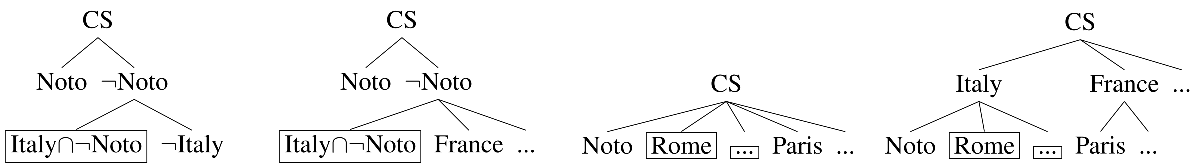


Figure 6: Intersecting a city-node (*Paris*) and a country-level Qtree (4A) just returns the node.

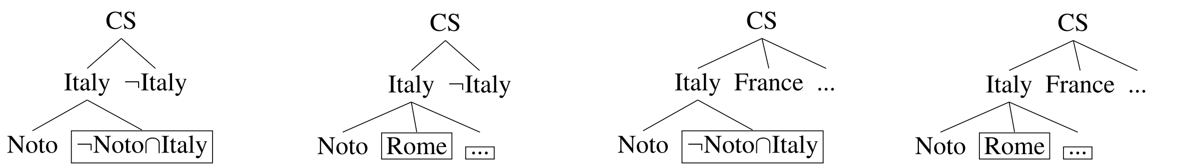
(15) *Vacuous Tree-Node intersection (predicted from (14)).* If N is a node and T a Qtree with a leaf L entailed by N (i.e. s.t. $N \cap L = N$) then $N \cap T = N$. Moreover, $N \cap T$ is verifying iff some node N' entailed by N in T is verifying in T.

Qtrees for the HCs in (2) are shown in Figures 7 and 8. They are obtained by applying (13) to all pairs of Qtrees from Figures 4 (for X) and 5 (for $\neg X^+$). The Qtrees in Figures 7C and 7D appear structurally similar to the antecedent Qtrees used to form them, due to property (15).



(A) 5A → 4A. (B) 5A → 4B. (C) 5B → 4B/4A. (D) 5C → 4B/4A.

Figure 7: Qtrees for (2a)=#*If SuB29 will not take place in Noto, it will take place in Italy.*



(A) 4A → 5A. (B) 4A → 5B/5C. (C) 4B → 5A. (D) 4B → 5B/5C.

Figure 8: Qtrees for (2b)=*If SuB29 will take place in Italy, it will not take place in Noto.*

Many Qtrees seem available for both the felicitous (2b) and the odd (2a). The two sets of Qtrees are however different, since (13) defined an asymmetric operation. What is the key difference between them? It appears that *some* Qtrees compatible with (2b), namely 8B and 8D, *still* feature a by-city partition at the leaf level, as “intended” by (2b)’s consequent; while *none* of the Qtrees compatible with (2a) still feature the by-country partition as “intended” by (2a)’s consequent. Such Qtrees either feature by-city partitions at the leaf level (7C and 7D),

[11] More formally: $Qtrees(X \to Y) = \{T_X \cup \bigcup_{N \in \mathbb{N}^+(T_X)} (N \cap T_Y) | (T_X, T_Y) \in Qtrees(X) \times Qtrees(Y) \wedge T_X \cup \bigcup_{N \in \mathbb{N}^+(T_X)} (N \cap T_Y)$ verifies (9)$\}$, and $\mathbb{N}^+(T_{\to}) = \{N \cap N' | (N, N') \in \mathbb{N}^+(T_X) \times \mathbb{N}^+(T_Y) \wedge N \cap N' \neq \emptyset\}$.

or feature "mixed" partitions where some country nodes (namely, *Italy*-nodes) are cut-out (7A and 7B). In other words, it seems that the consequent of (2b) *can* be considered relevant to the global question evoked by this sentence, while the consequent of (2a) *cannot*.

4.4. Rephrasing Relevance

According to Lewis (1988), a proposition is relevant to a QuD (partition of the CS), if it coincides with a union of cells; cf. (16). According to Roberts (2012), a proposition is relevant if it simply rules-out a cell; a question is relevant if each of its alternatives does so; cf. (17).

(16) *Lewis'* RELEVANCE. p is relevant to Q (partition of the CS) iff $\exists C \subseteq Q.\ p = \bigcup C$.

(17) *Roberts'* RELEVANCE.
  (i) A proposition p is relevant to Q iff $\exists C \in Q.\ p \cap C = \emptyset$.
  (ii) A question Q' is relevant to Q if its alternatives are relevant to Q.

Neither (16) nor (17-i), are sensitive to how p "packages" information. Yet, the question-answer pairs in (18) show that p's conveyed granularity should be taken into account when assessing RELEVANCE. (18)'s QuD strongly suggests a by-country partition of the CS. This predicts both (18a) and (18b) to be relevant under both views, because both sentences refer to a proper subset of all countries. Yet, (18b) does not appear felicitous without hedging (e.g., using *for all I know*). Its relative oddness in this context is however intuitive: *Europe* feels "coarser-grained" than, e.g. *France or Belgium*. Evoked Qtrees happen to model this:[12] a Qtree for (18a) will feature a country-level terminal layer (to be justified in Section 5), properly coinciding with the QuD; while a Qtree for (18b) will "stop" at the continent-level. But no continent properly "fits" within a country-cell of the QuD. Making RELEVANCE sensitive to distinctions in evoked Qtrees could thus explain the contrast in (18a-18b).

This may also capture the contrast between (18c) and (18d)–though (17-i) achieves this, too. (18c) turns out not so odd, because it typically evokes a Qtree featuring a terminal city-layer, in which each node can be "fitted" within single country (i.e. is relevant to the QuD according to (17-i)). (16) on the other hand, feels worse because the kind of question it evokes (*What's Jo's proficiency in French?*), features cells that cannot be properly mapped to the partition set by the QuD. These data overall suggest that a proposition is relevant if it evokes a Qtree whose nodes all entail some cell of the overt QuD. This constitutes an extension (and a strengthening) of (17-ii), granted assertions evoke questions.

(18) In which country did Jo grow up?

a.	– They grew up in France or Belgium.	(16) ✓ (17) ✓
b.	?? – They grew up in Europe.	(16) ✓ (17) ✓
c.	? – They grew up in Paris (or Brussels).	(16) ✗ (17) ✓
d.	?? – They speak French natively	(16) ✗ (17) ✗

(19) introduces Q-RELEVANCE, which targets Qtree derivation instead of QuD-answer pairs. It applies incrementally at each step of the Qtree derivation process. The interesting case is the binary one: if two Qtrees combine together, the first Qtree can be seen as an "incremental"

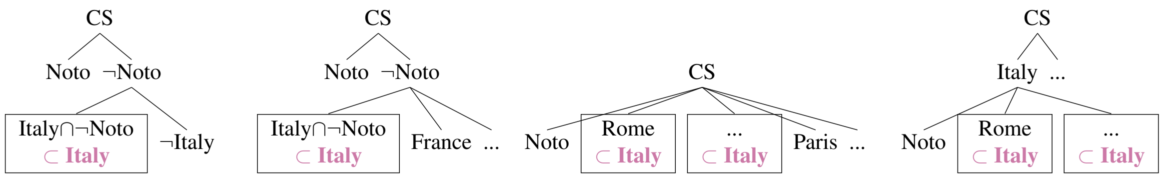
[12] See also Benbaji-Elhadad and Doron (2024) for a "dynamic" view of RELEVANCE along the same lines.

QuD, while the second Qtree (“input”) can be seen as a follow-up question subject to RELEVANCE. The result of this incremental combination creates an “output” Qtree, against which RELEVANCE is assessed. Specifically, Q-RELEVANCE targets the verifying nodes of the input Qtree, and evaluates how they “fit” into the output Qtree. A verifying node N “fits” a Qtree T iff it is not cut-out in T, i.e. no node in T overlaps with N without fully containing it. A correlate of this, is that no node of the output Qtree should *strictly entail* a verifying node of the input Qtree. (19) therefore involves a sightly weaker version of the previous intuition: only some nodes of the input Qtree (the verifying ones) will need to “fit” in the QuD/ouput Qtree.

(19) Q-RELEVANCE. Let X and Y be LFs and let $Qtrees(X)$ and $Qtrees(Y)$ be the sets of Qtrees compatible with X and Y. Let $\circ$ be a Qtree-level operation, e.g. $\neg$, $\vee$, or $\rightarrow$. Let C be a non-empty partial LF (incremental context). Two cases:
- $C = \circ$, with $\circ$ a unary operation. For any $T \in Qtrees(X)$, $\circ T$ is Q-RELEVANT with respect to $\circ X$ iff $\forall N \in \mathbb{N}^+(T).\ \neg\exists N' \in \mathbb{N}(\circ T).\ N' \subset N$.
- $C = X\circ$, with $\circ$ a binary operation. For any $T \in Qtrees(Y)$, $T_X \circ T_Y$ is Q-RELEVANT with respect to $X \circ Y$ iff $\forall N \in \mathbb{N}^+(T_Y).\ \neg\exists N' \in \mathbb{N}(T_x \circ T_Y).\ N' \subset N$

Q-RELEVANCE issues arise in conditional Qtrees like those evoked by the HCs in (2). This is because such Qtrees are formed *via* operations of the form $N \cap T$, with N a verifying node of an antecedent Qtree, and T a consequent Qtree. This may affect the verifying nodes of T in ways that violate Q-RELEVANCE. Specifically, (19) predicts that, in a conditional Qtree, each verifying node of the consequent Qtree compatible with *some* verifying node of the antecedent Qtree, should be fully preserved in the output Qtree.[13] We now detail how this applies to HCs.

Qtrees for the odd HC (2a) are repeated in Figure 7. Q-RELEVANCE predicts them all to be deviant, because, in each case, the output (conditional) Qtree contains nodes that strictly entail the verifying *Italy* node of the input (consequent) Qtree: nodes of the form *Italy and not Noto* (in Trees 7A and 7B), or city-level nodes (in Trees 7C and 7D). (2a) is thus compatible with no well-formed Qtree, and in turn predicted to be odd. Zooming out, this models the intuition that (2a) features a consequent that is too coarse-grained for its antecedent.



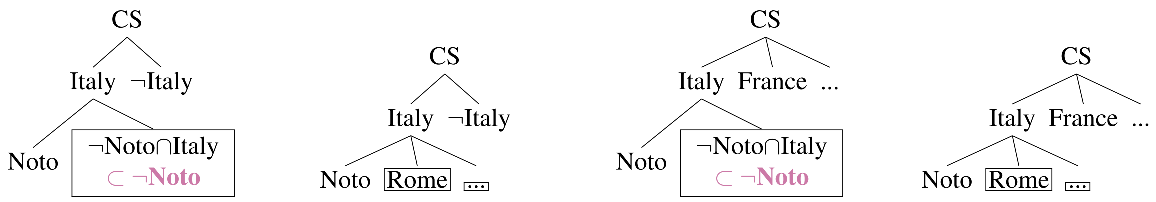
(A) 5A → 4A. (B) 5A → 4B. (C) 5B → 4B/4A. (D) 5C → 4B/4A.

Figure 7: Qtrees for (2a)=#*If SuB29 will not take place in Noto, it will take place in Italy.*

Regarding the felicitous HC (2b), Q-RELEVANCE predicts some, but crucially not all, of the Qtrees in Figure 8 to be deviant. Trees 8A and 8C are deviant, because in both cases, the output

[13] To see this, consider a Qtree $T_X \rightarrow T_Y$ compatible with an LF $X \rightarrow Y$. Within $T_X \rightarrow T_Y$, we focus on a subtree $N \cap T_Y$, with $N \in \mathbb{N}^+(T_X)$. (19) imposes that for each verifying node in T_Y, no node of $N \cap T_Y$ strictly entails it: $\forall N' \in \mathbb{N}^+(T_Y).\neg\exists N'' \in \mathbb{N}(N \cap T_Y).\ N'' \subset N'$. If N' in this formula is incompatible with N, then for sure no node N'' will strictly entail it. If N' is compatible with N, then a violation of (19) arises as soon as $N \cap N' \subset N'$, i.e. if intersecting N' with N “shrinks” N'. This holds for any subtree $N \cap T_Y$ of $T_X \rightarrow T_Y$, with $N \in \mathbb{N}^+(T_X)$.

Qtree contains nodes of the form *Italy and not Noto*, which strictly entail the verifying *not Noto* node of the input consequent Qtree. Trees 8B and 8D however, do not violate Q-RELEVANCE, because they are constructed from a consequent Qtree for *not Noto* that introduces a city-level partition that perfectly "fits" the restriction to *Italy* introduced by the antecedent Qtree, so that no city-node verifying *not Noto* is strictly entailed by a node in the output Qtree. (2b) is thus compatible with *some* well-formed Qtrees, and in turn is predicted felicitous. Zooming out, this models the intuition that (2b)'s consequent *can* be made fine-grained enough to meaningfully combine with its antecedent.



(A) 4A → 5A. (B) 4A → 5B/5C. (C) 4B → 5A. (D) 4B → 5B/5C.

Figure 8: Qtrees for (2b)=*If SuB29 will take place in Italy, it will not take place in Noto.*

The next Section turns to the HDs in (1). First, disjunctive Qtrees are defined as symmetric "unions" of the disjuncts' Qtrees. The infelicity of HDs is then captured *via* a QuD-driven REDUNDANCY constraint, elaborating on the version introduced by Hénot-Mortier (to appear).

5. Capturing Hurford Disjunctions

5.1. Questions evoked by disjunctive LFs

Building on Simons (2001); Zhang (2022); Hénot-Mortier (to appear), we submit that disjunctive LFs evoke questions pertaining to both disjuncts, *in parallel*. In other words, disjuncts should mutually address each-other's questions. This is modeled by assuming that disjunction returns all possible unions of the Qtrees evoked by both disjuncts, filtering out the outputs that do not qualify at Qtrees. This is formulated in (20).

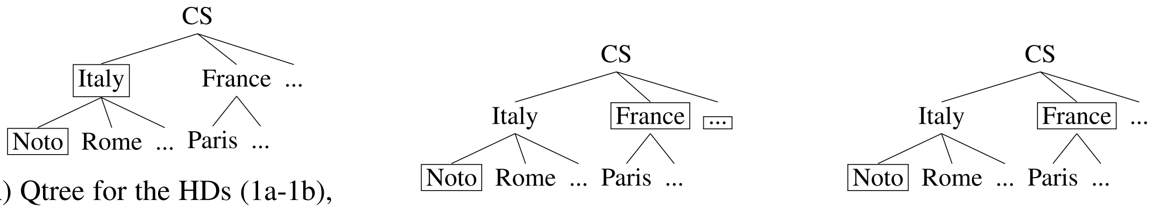
(20) *Qtrees for disjunctive LFs.*[14] A Qtree $T_\vee$ for $X \vee Y$ is obtained from a Qtree T_X for X and a Qtree T_Y for Y by:
- unioning the nodes, edges, and verifying nodes of T_X and T_Y;
- returning the output only if it is a Qtree.

(20) predicts that two Qtrees sharing the same CS can be properly disjoined iff they appear structurally parallel up to a certain level, and any further partitionings they independently introduce do not "clash" with each other.[15] This implies that two sentences evoking different

[14] More formally: $Qtrees(X \vee Y) = \{T_X \cup T_Y | T_X \cup T_Y \text{verifies (9)} \wedge (T_X, T_Y) \in Qtrees(X) \times Qtrees(Y)\}$, and $\mathbb{N}^+(T_\vee) = \mathbb{N}^+(T_X) \cup \mathbb{N}^+(T_Y)$.

[15] We assume two Q-trees T and T' feature a bracketing clash iff there is $N \in T$ and $N' \in T'$ s.t. $N = N'$ but the sets of children of N and N' differ. We show that if T and T' exhibit such a clash, their disjunction is not a Q-tree. Let's call C and C' the sets of nodes of resp. T and T' that induce a bracketing clash; by assumption, C and C' are s.t. $C \neq C'$, and have mothers N and N' s.t. $N = N'$. Because $\vee$ achieves graph-union, $T \vee T'$ will have a node N with $C \cup C'$ as children, and because $C \neq C'$, $C \cup C' \supset C, C'$. Given that both C and C' are partitions of N, $C \cup C'$ cannot be a partition of N. Conversely, if two Q-trees T and T' sharing the same CS as root are s.t. their union

levels of granularity (e.g., city-level vs. country level) can in principle be disjoined by picking Qtrees T and T' for resp. the finer-grained and coarser-grained disjunct, s.t. T, constitutes a refinement of T' as per (10). The only Qtree compatible with (1a) and (1b), obtained in this way, is given in Figure 11A.



(A) Qtree for the HDs (1a-1b), derived from 3C∨4B

(B) Qtree for (21a).

(C) Qtree for (21b).

Figure 11: Qtrees for disjunctive sentences featuring disjuncts with different granularities.

Why predict that Qtrees for odd HDs like (1a-1b) should be derivable in the first place? This turns out useful to derive Qtrees for closely related yet felicitous sentences such as (21a-21b), which feature *incompatible* disjuncts with different granularities. Qtrees for (21a-21b) are given in Figures 11B and 11C.

(21) a. SuB29 will take place in Noto or will not take place in Italy.
b. SuB29 will take place in Noto or in France.

These two examples and their Qtrees also suggest what the issue might be with the infelicitous HDs (1a-1b) and their Qtree in Figure 11A: the path connecting the root to the verifying node *Noto*, properly contains the path connecting the root to the verifying node *Italy*. Entertaining these two paths–or strategies of inquiry–appears suboptimal: why inquire about a country like *Italy*, if one already inquires about a city like *Noto*? The Qtrees in Figure 11B and 11C do not exhibit similar contained paths. We now restate this observation in the form of a REDUNDANCY constraint targeting LF-Qtree pairs.

5.2. Defining Redundancy on LF-Qtree pairs

As briefly discussed in section 2, REDUNDANCY-based approaches to oddness (Meyer, 2013; Katzir and Singh, 2014; Mayr and Romoli, 2016 i.a.) build on the general idea that a felicitous sentence should not have the same contribution to a conversation as one of its formal simplifications. The major issue with most previous REDUNDANCY-based approaches (the notable exception being Kalomoiros (2024)) is that they predict isomorphic sentences (as defined in (4)) to exhibit the same degree of deviance. So contrasts between HDs and HCs, and within HCs, could not be easily captured. Under our QuD-informed view however, disjunctions and implications do have different pragmatic contributions. Making REDUNDANCY sensitive to these differences, allows to derive the desired contrasts.

$T \cup T'$ is not a Qtree, it must be because T and T' had a bracketing clash. Indeed, under those assumptions, $T \cup T'$ not being a Qtree means one node N in $T \cup T'$ is not partitioned by its children. Given N is in $T \cup T'$, N is also in T, T', or both. If N was only in, say, T, then it means N's children are also only in T, but then, T itself would have had a node not partitionned by its children, contrary to the assumption T is a Qtree. The same holds *mutatis mutandis* for T', so, N must come from *both* T and T'. Let us call C and C' the partitioning introduced by N in resp. T and T'. The fact C, C', but not $C \cup C'$ partition N entails $C \neq C'$, i.e. T and T' feature a bracketing clash.

(22a) restates REDUNDANCY as a constraint on LF-Qtree pairs: a Qtree evoked by a sentence is Q-REDUNDANT if it is equivalent to a Qtree evoked by one the sentence's formal simplifications. Equivalence between Qtrees is defined in terms of both tree structure and optimal strategies of inquiry, i.e. minimal sets of paths from the root to each existing verifying node. Two Qtrees are equivalent, if their structure and optimal strategies of inquiry are the same. Considering optimal strategies of inquiry cashes out the intuition that inquiring about p^+ settles p "for free", in the sense that any path to p^+ in a given Qtree, contains a path to p.

(22) a. Q-REDUNDANCY. Let X be a LF and let $Qtrees(X)$ be the set of the Qtrees compatible with X. For any $T \in Qtrees(X)$, T is deemed Q-REDUNDANT with respect to X iff there exists a formal simplification of X, X', and $T' \in Qtrees(X')$, such that $\mathscr{R}(T) \equiv \mathscr{R}(T')$.

b. *Formal simplification.* X is a formal simplification of X if X' can be derived from X *via* a series of constituent-to-subconstituent substitutions (à la Katzir (2007)).

c. Qtree equivalence relation $\equiv$. $T \equiv T'$ iff T and T' have same structure and same set of minimal verifying paths.

d. *Qtree reduction function* $\mathscr{R}$. $\mathscr{R}(T)$ is the tree obtained from T by removing all empty nodes and recursively replacing only children by their mother, percolating the "verifying" property as needed.[16]

e. *Set of verifying paths* $\mathbb{P}(T)$ *of a Qtree* T. Set of paths starting from the root of T, and such that each path finishes in each $N \in \mathbb{N}^+(T)$.

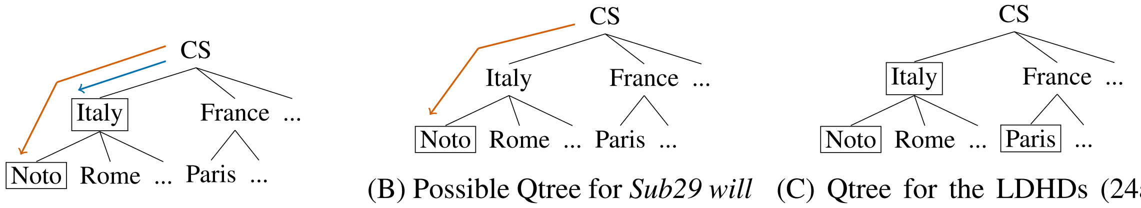
f. *Path containment.* Two paths p_1 and p_2 (seen as strings of nodes) are in a containment relation ($p_1 \subseteq_{\mathbb{P}} p_2$) if p_1 is a prefix of p_2.

g. *Set of minimal verifying paths* $\mathbb{P}^*(T)$ *of a Qtree* T. Set of minimal elements of $\mathbb{P}(T)$ w.r.t. the path containment relation.

We now see how this applies to (1) and (2). First, (22a) does not interfere with the result established for HCs in Section 4.[17] Moreover, Q-REDUNDANCY explains why the only Qtree compatible with the HDs (1a-1b), repeated in Figure 12A, is redundant: it is equivalent (in terms of structure and minimal verifying paths) to a Qtree evoked by X^+=*SuB29 will take place in Noto*, repeated in Figure 12B. The equality between the sets of minimal verifying paths for those two trees is justified in (23).

[16]This means that, if the only child deletion operation targets a mother node M and its only child node N, the output is M and is verifying iff M *or* N is verifying.

[17]None of the Qtrees in Figures 7 and 8 violate (22a). To see this, we review the Qtrees associated to the simplifications of (2a) and (2b). First, Qtrees for the simplifications *Sub29 will take place in Noto/Italy*, and *Sub29 will not take place in Noto*, shown in Figures 3, 4 and 5, either have a different structure, or different minimal verifying paths from the Qtrees in Figures 7 and 8, so (22a) is not triggered. Regarding the simplification of (2a) *If SuB29 will take place in Noto, it will take place in Italy*, it is predicted, as per property (15), to give rise to the same Qtrees as *Sub29 will take place in Noto*, which, as said above, do not trigger (22a). Lastly, the simplification of (2b) *If SuB29 will take place in Italy, it will take place in Noto*, evokes Qtrees structurally similar to those in Figure 8, but whose verifying nodes support *Noto* (instead of *not Noto*), and as such cannot trigger (22a).



(A) Qtree for the HDs (1a-1b).

(B) Possible Qtree for *Sub29 will take place in Noto* (=Figure 3C).

(C) Qtree for the LDHDs (24a) and (24b).

Figure 12: Showing that the HDs (1a-1b) are Q-REDUNDANT

(23) $\mathbb{P}(12\text{A}) = \{[CS,\ Italy,\ Noto],\ [CS,\ Italy]\}$
$\mathbb{P}^*(12\text{A}) = \{[CS,\ Italy,\ Noto]\}$, because $[CS,\ Italy] \subseteq_{\mathbb{P}} [CS,\ Italy,\ Noto]$
$\mathbb{P}(12\text{B}) = \{[CS,\ Italy,\ Noto]\} = \mathbb{P}^*(12\text{B}) = \mathbb{P}^*(12\text{A})$

Before moving on, let us note a few things about Q-REDUNDANCY. First, while previous REDUNDANCY-based accounts (e.g. Katzir and Singh, 2014) deemed HDs redundant because they were contextually equivalent to their *weaker* disjunct, Q-REDUNDANCY does the opposite: an LF-Qtree pair is typically Q-REDUNDANT because the Qtree turns out to be equivalent to that of a logically *stronger* competitor. For instance, the only Qtree compatible with (1a-1b) is equivalent to a Qtree evoked by the simplification *SuB29 will take place in Noto*, which corresponds to (1a-1b)'s *stronger* disjunct. This is in line with a concept of "inquisitive" (as opposed to "logical") redundancy: once we inquire about a *stronger* eventuality (e.g., *Noto*), inquiring about a *weaker* alternative to this eventuality (e.g., *Italy*), becomes useless. Additionally, Q-REDUNDANCY is relatively easy to violate: for a Qtree to be redundant given an LF evoking it, it is enough to find *one* equivalent Qtree generated by *one* simplification of the LF. Moreover, a sentence can be odd if *some* of its evoked Qtrees trigger Q-REDUNDANCY, and the remaining ones violate Q-RELEVANCE. These observations are further discussed in Hénot-Mortier (to appear). Lastly, Q-REDUNDANCY is in effect close to Ippolito (2019)'s SPECIFICITY CONSTRAINT. The main conceptual difference is that Ippolito's constraint does not involve competition with simpler LFs, and instead defines ill-formed configurations of nodes *in* a fixed tree.[18] We now briefly show how our model also captures two kinds of "non-entailing" HDs: Long-Distance HDs (henceforth **LDHD**, Marty and Romoli, 2022), which are derived from HDs by further disjoining the stronger disjunct with a proposition incompatible with the weaker disjunct, and disjunctions featuring merely compatible disjuncts (Singh, 2008b).

5.3. Extension to varieties of non-entailing HDs

LDHDs (cf. (24)), are infelicitous, despite the fact that none of their disjuncts are in an entailment relation–thus falling outside Hurford's original constraint. LDHDs evoke Qtrees like the one in Figure 12C. This Qtree is deviant because it is equivalent to the Qtree evoked by the simplification of (24a-24b) in (25).

(24) a. # Either SuB29 will take place in Italy, or it will take place in Noto or Paris.
b. # Either SuB29 will take place in Noto or Paris, or it will take place in Italy.

(25) SuB29 will take place in Noto or Paris.

[18]Ippolito's constraint also bans disjunctions with incompatible, different-granularity alternatives, like (21a-21b).

Our model also extends to disjunctions like (26), featuring merely compatible disjuncts (Singh, 2008b). In (26), the first disjunct suggests a by-region partition, while the second disjunct suggests a by-country partition. The relevant Qtrees are built in Figure 13. It turns out that the Qtrees in Figure 13A cannot be properly disjoined with any of those in Figure 13B, because they introduce different, parallel partitionings.[19] So (26) is odd simply because it features disjuncts with incomparable degrees of granularity, which cannot lead to any well-formed disjunctive Qtree. There is in fact no need to appeal to Q-REDUNDANCY.[20]

(26) # SuB29 will take place in the Basque country or France.

(A) For *SuB29 will take place in the Basque country* (B) For *SuB29 will take place in France*

Figure 13: Possible Qtrees for the disjuncts of (26)

6. Conclusion

We developed an account of Hurford Sentences based on implicit QuDs and constraints on their derivation. This framework captures the challenging contrast between HDs, which are infelicitous in both orders, and HCs, whose felicity profile seems sensitive to granularity considerations. We also sketched how this model could capture "non-entailing" HDs. An issue remains with "conditional" counterparts of (26), shown in (27). (27a-27b) are *both* predicted to be odd, roughly because Qtrees evoked by *France* and Qtrees evoked by *the Basque country* convey incomparable degrees of granularity, and thus are not in any kind of refinement relation.

(27) a. ? If SuB29 will take place in France, it will take place in the Basque country.
b. # If SuB29 will take place in the Basque country, it will take place in France.

In our framework, the contrast in (27) suggests that it is somehow easier to "split" *Basque country* nodes into French and Spanish subsets (to satisfy Q-RELEVANCE in 27a), than to "split" *France* nodes into Basque and non-Basque subsets (to satisfy Q-RELEVANCE in 27b). Future work will determine when and how such coercion operations on Qtrees can take place.

Beyond Hurford Phenomena, our model of implicit QuDs raises a range of questions: why are the "inquisitive" contributions of $\neg$, $\rightarrow$, and $\vee$ defined the way they are? What distinguishes non-scalar from scalar alternatives when it comes to Qtree computation? How do Qtrees interact with presuppositions (e.g. in Partee's *bathroom sentences*; Roberts, 1989), and focus-sensitive operators (e.g. in HDs with *only*; Singh, 2008b). What about conjunctions?[21]

[19]The only remaining way to create a well-formed Qtree for (26), would be to attempt to create a tiered Qtree for *SuB29 will take place in the Basque country*, involving a country-layer (*via* principle (11iii)). But this turns out impossible, because *p=SuB29 will take place in the Basque country* does not entail that SuB29 will place in any single specific country, so no *p*-chain can contain a country-level alternative to *p*, and consequently, no country-layer can be generated in *p*'s tiered Qtree.

[20]Granted a reasonable model of conjunction, this kind of prediction could extend to "conjunctive" HDs (Zhang, 2022; Zhang, to appear), like *#Jo is in Paris or in France and married.*

[21]Enguehard (2021) in fact proposes an account of conjunctions of questions, and their interaction with presupposition projection, by introducing an asymmetry in the global partition (derived after conjoining questions) that is somewhat similar to the one our conditional Qtrees are taken to exhibit.

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