Coordinating Complete Answers:
The Case of *Tanto-Quanto* Conjunction[*]

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Abstract

We discuss a coordination strategy found in Portuguese and Italian which we call *Tanto-Quanto Conjunction* (TQC). The semantic properties that distinguish this construction from run-of-the-mill *and*-conjunction are the focus of this paper. TQC imposes a discourse related requirement on its conjuncts, namely that they each be a complete answer to a question raised in the discourse. We propose an analysis of TQC where each of its conjuncts falls under the scope of a focus sensitive operator which, by means of an answerhood operator, checks that its prejacent satisfies this requirement.

1 Introduction

In this paper we investigate the semantic properties of a coordinating construction found in Portuguese and Italian, which we name *Tanto-Quanto Conjunction* (henceforth: TQC) after the pieces that compose it. TQC in both languages is illustrated in (1):[1]

(1) a. Tanto a Sara quanto a Maria trabalham em Paris.　　　Portuguese
　　　 TANTO the Sara QUANTO the Maria work　　in　Paris
　　　 Sara and Maria work in Paris.

　　 b. Tanto Sara quanto Maria lavorano a Parigi.　　　Italian
　　　 TANTO Sara QUANTO Maria work　　in Paris
　　　 Sara and Maria work in Paris.

Tanto and *quanto* are also found in equative constructions, as shown in (2a). However, the TQC in (2b) lacks an equative meaning altogether: rather than implying that Sara and Maria like cars to the same degree, its truth conditional import is simply that they both like cars. For example, as opposed to (2a), (2b) could be truthfully uttered in a context in which one of Sara and Maria likes cars much more than the other.

(2) a. A Sara gosta tanto de carro quanto a Maria.
　　　 the Sara like　TANTO of car　QUANTO the Maria
　　　 Sara likes cars as much as Maria.

　　 b. Tanto a Sara quanto a Maria gostam de carro.
　　　 TANTO the Sara QUANTO the Maria like　　of car
　　　 Sara and Maria like cars.

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[1]For conciseness, we use only Portuguese examples in the rest of the paper, but all facts we observe and discuss hold in both languages in the same way.

Translating TQC into English *and* (i.e., via *and*-conjunction), as done above, preserves the truth conditional meaning of the utterance: that both conjuncts are true. However, we argue that TQC imposes a discourse related requirement on its conjuncts that *and*-conjunction (expressed in Italian and Portuguese as *e*) does not. We propose that the distribution of TQC is constrained by the following appropriateness condition:

(3) **TQC's appropriateness condition**
     ⌜Tanto A quanto B VP⌝ is felicitously uttered in a context *c* only if each of ⟦A VP⟧ and ⟦B VP⟧ are a **complete answer** to a question raised in *c*.

The core data supporting this claim come from observations concerning the kind of explicit questions that TQC is a felicitous answer to (section 2). We propose an analysis of such facts in terms of recent accounts of exhaustivity in questions [3] (section 3.1) and [13]'s alternative semantics for focus (section 3.2). In our proposal, each conjunct of a TQC is taken to fall under the scope of a focus sensitive operator which, by means of an answerhood operator, checks that its prejacent is a complete answer to a question raised in the discourse (section 4). Our analysis relies on TQC being an instance of sentential coordination, and we present independent motivation for this assumption (section 5).

2 *Tanto-Quanto* Conjunction in answers to questions

Questions usually demand exhaustive answers ([5] and much subsequent work). For example, an appropriate answer to (4) is one in which all people with a PhD are specified.[2] A′ is inappropriate because it is interpreted exhaustively, which renders it incompatible with the facts.

(4) CONTEXT: Only Sara and Maria have a PhD.
     Q: Who has a PhD?   A: Sara and Maria.
                          A′: #Sara.

The question-answer pairs in (4) contrasts with those in (5), in which the question has the possibility modal *can*. As observed by [5], such questions do not seem to require an exhaustive answer: both A and A′ are an appropriate answer to the question in (5).

(5) CONTEXT: Sara can drive people back and Maria can drive people back. No one else can.
     Q: Who can drive us back?   A: Sara and Maria.
                                  A′: Sara.

Questions that demand an exhaustive answer, like the one in (4), are referred to as **mention-all** (MA) questions, whereas those that do not, like the one (5), are referred to as **mention-some** (MS) questions. From now on, we refer to answers from appropriate question-answer pairs as **complete answers**. MA and MS questions differ in that the former has a single complete answer, whereas the latter allows for the possibility of there being more than one.

The MA/MS distinction is relevant here because TQC is sensitive to it, and therefore it is an important tool to probe into the meaning of this construction. Consider the question-answer pairs in (6)-(7) where TQCs appear in the answers, coordinating the NP correlates of the *wh*-item in the question. The crucial fact here is that, different from *and*-conjunction, TQC cannot be used as an answer to an MA question, as seen in (6). Nonetheless, TQC can be felicitously used as an answer to MS questions, as seen in (7).

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[2]In (4) we assume all answers are pronounced with a falling tone. This is important because certain prosodic contours can be used to indicate that the answer is not to be interpreted exhaustively.

(6)   Q: Who has a PhD?

    a. #Tanto   a   Maria quanto   a   Sara.
       TANTO the Maria QUANTO the Sara

    b.   A   Maria e   a   Sara.   ⤳Only Maria and Sara have a PhD
       the Maria and the Sara

(7)   Q: Who can drive us back?

    a.   Tanto   a   Maria quanto   a   Sara.   ↛Only Maria and Sara can drive us back
       TANTO the Maria QUANTO the Sara

    b.   A   Maria e   a   Sara.   ⤳Only Maria and Sara can drive us back
       the Maria and the Sara

The question-answer pairs in (6) and (7) show that TQC can be an answer to MS questions, but not to MA questions. This paradigm can be accounted for by the appropriateness conditions in (3), which states that each of TQC's conjuncts must be a complete answer to a question raised in the context. In (6), an MA question is raised, and therefore, answers must be interpreted exhaustively to be appropriate. Answering such question with a TQC is unavoidably infelicitous: interpreting its conjuncts non-exhaustively makes them an infelicitous answer, whereas interpreting them exhaustively makes them contradictory. This contrasts with contexts in which an MS question is raised, since these questions may have more than one complete answer. For example, in (7a) each of the TQC's conjuncts is individually a complete answer to the MS question.

Note that there is still a difference between TQC and *and*-conjunction in answers to MS questions: TQC does not lead to an exhaustivity inference, while *and*-conjunction does. The latter was noted by [14], who argues that MS questions are more precisely described as "mention-one": an MS answer specifies exactly one of the possible options. This difference between TQC and *and*-conjunction follows from the fact that the answer with *and*-conjunction in (7b) is interpreted as a whole as an answer to the question, whereas only the individual conjuncts of TQC are interpreted as such, as the appropriateness condition stated in (3) indicates.

Even with TQC one can still observe the effects that MS is "mention-one". Take (8) to be uttered in a context in which there are exactly three people who can drive us back (Maria, Paula and Sara). Although it is possible to answer this question with *and*-conjunction of all three entities as in (8a), the TQC in (8b), whose first conjunct is an *and*-conjunction, is infelicitous.

(8)   Q: Who can drive us back?

    a.   A   Maria, a   Paula, e   a   Sara.
       the Maria the Paula and the Sara

    b. #Tanto [a   Maria e   a   Paula] quanto   a   Sara.
       TANTO the Maria and the Paula QUANTO the Sara

    c. #A   Maria e   a   Paula.
       the Maria and the Paula

In order for the TQC in (8b) to be appropriate, each conjunct has to be a complete answer to the question Q. Although this is the case for the second conjunct (*a Sara*), it is not so for the first conjunct: as seen in (8c), *Maria and Paula* is not an appropriate answer to *Q*.

Note that the appropriateness condition in (3) does not require that the conjuncts of a TQC be a complete answer to the same question. Observe the dialogue in (9), in which two questions are raised. TCQ's appropriateness condition is satisfied because *Maria drives a Ferrari* is a

complete answer to *What does Maria drive?* and *Sara drives a Ferrari* is a complete answer to *What does Sara drive?*. Crucially, if the context were such that Maria drives both a Ferrari and an Lamborghini, the TQC in (9) would be infelicitous.

(9)   a.   Q: What does Maria drive? What about Paula, what does she drive?

    b.   Tanto a   Maria quanto   a   Paula dirigem Ferrari.
          TANTO the Maria QUANTO the Paula drive   Ferrari

In this section, we used question-answer pairs to investigate the appropriateness conditions of TQC. Of course, TQC can be appropriately used in utterances that are not answers to explicit questions. We however believe that the appropriateness condition in (3) can be extended to such cases as well. One way to do so would be to follow [12] in modeling discourse as always involving questions being raised, be they explicit or implicit. If such a model were adopted, (3) would make reference to salient Questions Under Discussions (QUDs). For the remaining of this paper, we remain agnostic to an actual implementation along these lines, and the account of TQC we propose can be straightforwardly implemented in different models of discourse.

3   Theoretical background

Here we discuss our assumptions concerning exhaustivity in questions and focus semantics.

3.1   A working analysis of exhaustivity in questions

Following [7], we take questions to denote the set of their answers, as shown in (10).[3]

(10) $[\![$ Who has a PhD? $]\!]^w = \{\lambda w'.\ \mathsf{has\text{-}a\text{-}PhD}_{w'}(x) \mid \mathsf{human}_w(x)\}$

Under this assumption, exhaustivity in questions can be accounted for by an answerhood operator Ans [8]. A variety of such operators have been proposed in the literature. Here, we adopt [3]'s, presented in (11), which is a weakened version of [2]'s: while [2]'s Ans returns the maximally informative true answer to a question, [3]'s returns the set of maximally informative true answers (i.e., the set of true answers that are not entailed by any other true answer).[4] This weakening of Ans is motivated by the need of accounting for MS questions, which, as we have seen, allow for more than one complete answer. Furthermore, we assume the answerhood condition in (12), which specifies whether a given proposition is a complete answer to a question.

(11) $\mathsf{Ans}(Q) \coloneqq \lambda w.\ \{p \in Q \mid p(w) \wedge \forall q \in Q[q(w) \to q \not\sqsubset p]\}$

(12)   **The Answerhood Condition**
     A proposition p is a complete answer to a question Q in a world w iff $p \in \mathsf{Ans}(Q)(w)$.

Here's an illustration of how MA readings of *wh*-questions are derived. Assume that there are only three human—Sara, Maria, and Paula—and only the first two have a PhD. The question in (10) thus denotes the question set in (13),[5] and its true answers are s, m, and $\mathsf{s}\oplus\mathsf{m}$, underlined in (13). As shown in (14), when Ans applies to this set, it only returns $\mathsf{s}\oplus\mathsf{m}$: although s and m are true, they are both entailed by $\mathsf{s}\oplus\mathsf{m}$ (since *to have a PhD* is a distributive predicate). Therefore, given (12), only *Sara and Maria* will be an appropriate answer to (10).

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[3]We assume with [2] that *who* is number neutral—the predicate human in (10) thus ranges over both singularities and pluralities.

[4]Both [2]'s and [3]'s entries for Ans are presuppositional, a matter we leave aside in the present discussion.

[5]From now on, given an individual constant α, we abbreviate a proposition $\lambda w.\ \phi(\alpha)(w)$ to simply α.

(13) $Q = \{\underline{\mathsf{s}}, \underline{\mathsf{m}}, \mathsf{p}, \underline{\mathsf{s}\oplus\mathsf{m}}, \mathsf{s}\oplus\mathsf{p}, \mathsf{m}\oplus\mathsf{p}, \mathsf{s}\oplus\mathsf{m}\oplus\mathsf{p}\}$

(14) $\mathsf{Ans}(Q)(@) = \{\mathsf{s}\oplus\mathsf{m}\}$ ('@' stands for the world of evaluation)

[3] assumes questions with possibility modals, such as (15), to be ambiguous between an MS and an MA reading. The proposed ambiguity is due to the scope of distributivity in these sentences: if it is above the modal, as in (15b), we get an MA reading of the question, but if it is below the modal, as in (15c), we get an MS reading.

(15)   a.   Who can drive us back?

   b. $\{\lambda w.\ \forall y \leq_{\mathsf{at}} x : \Diamond_w(\lambda w'.\ \mathsf{drive\text{-}us\text{-}back}_{w'}(y)) \mid \mathsf{human}_@(x)\}$ MENTION-ALL

   c. $\{\lambda w.\ \Diamond_w(\lambda w'.\ \forall y \leq_{\mathsf{at}} x : \mathsf{drive\text{-}us\text{-}back}_{w'}(y)) \mid \mathsf{human}_@(x)\}$ MENTION-SOME

To see this, assume there are four humans—Maria, Sarah, Téo and Léo—and only the first three can be the person who will drive people back (assuming that driving is a one-person job). The question set of (15a) when distributivity takes wide scope is (16), where the true answers are underlined. All the true answers are entailed by $\Diamond\mathsf{m} \wedge \Diamond\mathsf{s} \wedge \Diamond\mathsf{t}$, and, therefore, this will be the sole member of the set Ans outputs (17).

(16) $Q = \left\{ \begin{array}{c} \underline{\Diamond\mathsf{m}},\ \underline{\Diamond\mathsf{s}},\ \underline{\Diamond\mathsf{t}},\ \Diamond\mathsf{l}, \\ \underline{\Diamond\mathsf{m} \wedge \Diamond\mathsf{s}},\ \underline{\Diamond\mathsf{m} \wedge \Diamond\mathsf{t}},\ \Diamond\mathsf{m} \wedge \Diamond\mathsf{l},\ \underline{\Diamond\mathsf{s} \wedge \Diamond\mathsf{t}},\ \Diamond\mathsf{s} \wedge \Diamond\mathsf{l},\ \Diamond\mathsf{t} \wedge \Diamond\mathsf{l} \\ \underline{\Diamond\mathsf{m} \wedge \Diamond\mathsf{s} \wedge \Diamond\mathsf{t}},\ \Diamond\mathsf{m} \wedge \Diamond\mathsf{s} \wedge \Diamond\mathsf{l},\ \Diamond\mathsf{s} \wedge \Diamond\mathsf{t} \wedge \Diamond\mathsf{l} \\ \Diamond\mathsf{m} \wedge \Diamond\mathsf{s} \wedge \Diamond\mathsf{t} \wedge \Diamond\mathsf{l} \end{array} \right\}$

(17) $\mathsf{Ans}(Q)(@) = \{\Diamond\mathsf{m} \wedge \Diamond\mathsf{s} \wedge \Diamond\mathsf{t}\}$

When distributivity scopes below the modal, the question set is quite different. This is illustrated in (18). First, because driving is a one person job, all members of (18) which involve disjunction below the possibility modal are incompatible with the context at hand. Therefore, the only true answers in this set are $\Diamond\mathsf{m}$, $\Diamond\mathsf{s}$, and $\Diamond\mathsf{t}$. Since these propositions are logically independent, they will all be in the set of answers that Ans outputs (19). Therefore, (15c) has more than one complete answer.

(18) $Q = \left\{ \begin{array}{c} \underline{\Diamond\mathsf{m}},\ \underline{\Diamond\mathsf{s}},\ \underline{\Diamond\mathsf{t}},\ \Diamond\mathsf{l}, \\ \Diamond(\mathsf{m} \wedge \mathsf{s}),\ \Diamond(\mathsf{m} \wedge \mathsf{t}),\ \Diamond(\mathsf{m} \wedge \mathsf{l}),\ \Diamond(\mathsf{s} \wedge \mathsf{t}),\ \Diamond(\mathsf{s} \wedge \mathsf{l}),\ \Diamond(\mathsf{t} \wedge \mathsf{l}) \\ \Diamond(\mathsf{m} \wedge \mathsf{s} \wedge \mathsf{t}),\ \Diamond(\mathsf{m} \wedge \mathsf{s} \wedge \mathsf{l}),\ \Diamond(\mathsf{s} \wedge \mathsf{t} \wedge \mathsf{l}) \\ \Diamond(\mathsf{m} \wedge \mathsf{s} \wedge \mathsf{t} \wedge \mathsf{l}) \end{array} \right\}$

(19) $\mathsf{Ans}(Q)(@) = \{\Diamond\mathsf{m}, \Diamond\mathsf{s}, \Diamond\mathsf{t}\}$

The fact that MS readings do not accept conjunctive answers is accounted for in this approach. In the MS question set, there are no viable conjunctive alternatives, therefore, a conjunctive answer could only be complete in the MA reading of this (15). However, in the MA reading of (15), there is a single complete answer.[6]

3.2   Alternative Semantics for Focus

In the alternative semantics account of focus [13], linguistic expressions are assigned two different semantic values: an ordinary semantic value ($[\![\cdot]\!]$) and a focus value ($\{\!\{\cdot\}\!\}$). Any expression mapped to an ordinary value of type σ is mapped to a focus value of type σt. Lexical items are

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[6][14] notes some problems with [3]'s approach to MS readings and offers an alternative analysis which still relies on the entry for Ans in (11). The choice between these two proposals does not affect our analysis of TQC.

in general assigned trivial focus values (i.e., the singleton containing their ordinary value (20a)) and focus values are combined via Pointwise Functional Application (20b).

(20) a. $\{\!\{\, \alpha \,\}\!\} = \{[\![\, \alpha \,]\!]\}$

     b. $\{\!\{\, \alpha\ \beta \,\}\!\} = \{f(x) \mid f \in [\![\, \alpha \,]\!] \wedge x \in [\![\, \beta \,]\!]\}$

Focused constituents are syntactically represented by having a morpheme F attach to them, whose lexical entry is specified in (21). Semantically, F is responsible for introducing multiple alternatives in the focus dimension of meaning. As illustrated in (22), if the proper name *Sara* is focused, its focus semantic value will be the set of all individuals.[7]

(21) a. $[\![\, \mathsf{F} \,]\!] = \lambda x_\sigma.\ x$ (22) a. $[\![\, \text{Sara}\ \mathsf{F} \,]\!] = \mathsf{s}$

     b. $\{\!\{\, \mathsf{F} \,\}\!\} = \{\lambda x_\sigma.\ y \mid y \in \mathrm{D}_\sigma\}$ b. $\{\!\{\, \text{Sara}\ \mathsf{F} \,\}\!\} = \{y \mid y \in \mathrm{D_e}\}$

[13] offers a uniform way to account for a whole range of focus-related phenomena by proposing that natural language has a single operator that is capable of manipulating focus values of expressions: $\sim$. It semantics is stated in terms of the syncategorematic rule in (23).

(23) $[\![\, \sim_Q \phi \,]\!] = \lambda w : Q \subseteq \{\!\{\, \phi \,\}\!\} \wedge [\![\, \phi \,]\!] \in Q \wedge |Q| > 1.\ [\![\, \phi \,]\!](w)$

One of the phenomena $\sim$ was proposed to account for is **Question-Answer Congruence** (QAC). This is illustrated in (24), where focus prosody is indicated with small caps. Although the ordinary values of both A and A$'$ are good candidates for complete answers to Q, the latter is infelicitous. The contrast is due to the placement of focus: for QAC to be satisfied, the constituent that is the correlate of the *wh*-item of the question must be the one to bear focus.

(24) Q: What did Alex read?   A: Alex read War and Peace.
                              A$'$: #Alex read War and Peace.

In [13], QAC follows from the presupposition of $\sim$. Under the assumption that answers fall under the scope of $\sim$ with a restrictor that matches the denotation of the question being asked, as in (25a), the presupposition of $\sim$ in (25b) will guarantee that QAC is satisfied.

(25) a. $\sim_Q [_\phi$ Alex read [War and Peace F]]

     b. $Q \subseteq \{\!\{\, \phi \,\}\!\} \wedge \{w \mid \mathsf{read}_w(\mathsf{a}, \mathsf{w\&p})\} \in Q \wedge |Q| > 1$
        where $Q = \{\!\{\, \phi \,\}\!\} = \{\lambda w.\ \mathsf{read}_w(\mathsf{a}, x) \mid x \in \mathrm{D_e}\}$

4   Analysis

We propose that TQC is an instance of what [10] refers to as Focus Sensitive Coordination (FSC), i.e., coordinations in which at least one of the coordinates is embedded under a Focus Sensitive Operator (FSO). In the case of TQC, we assume that both *tanto* and *quanto* are FSOs that locally check whether their prejacent is a complete answer to a question raised in the dicourse. Their lexical entries are defined in (26): they each combine with a proposition p and introduce the presupposition that p is a complete answer to a question Q, as determined by Ans. A covert & with the meaning in (27) conjoins the *tanto* and *quanto* clauses.

(26) $[\![\, \text{tanto}_Q \,]\!] = [\![\, \text{quanto}_Q \,]\!] = \lambda p.\lambda w : p \in \mathsf{Ans}(Q)(w).\ p(w)$

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[7]In [13]'s actual system, a special lexical rule is given to focused constituents.

(27) $[\![\&]\!] = \lambda p.\lambda q.\lambda w.\ p(w) \wedge q(w)$

In (28b), we provide the syntactic structure of the TQC in (28a). We assume that TQC involves sentential conjunction, even though, on the surface, (28a) seems be an instance of NP conjunction.[8] This is so because *tanto* and *quanto* take a propositional argument: under our current assumptions, being a complete answer to a question is a property of propositions. We therefore assume that in (28a), the VP of the first clause is elided (see [9] for a recent proposal in which *and*-conjunction is completely reduced to sentence conjunction).

(28)   a.   Tanto   a   Sara   quanto   a   Maria podem dirigir o   carro.
            TANTO the Pedro QUANTO the Sara   can   drive the car

      b.
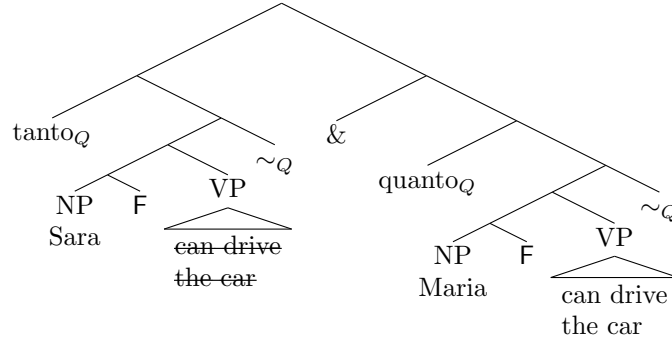
Due to the ungrammaticality of (29), we must assume that ellipsis is obligatorily.

(29) *Tanto   o   Pedro comeu peixe quanto   a   Sara comeu peixe.
       TANTO the Pedro ate   fish   QUANTO the Sara ate   fish

Finally, note that neither *tanto* nor *quanto* directly access the focus values of their prejacent. As in [13], this is done by having a $\sim$ with a matching restrictor immediately dominated by the sister node of the FSO. Among other things, $\sim$ also guarantees that QAC is satisfied.

We now show how this analysis accounts for the data discussed in section 2, starting with MS questions. Assuming that the value of Q in (28b) is the question in (30a) and that only Maria, Sara and Léo can drive the car, the set of complete answers is the one in (30b).[9] Ignoring the presuppositions triggered by $\sim$, we predict the appropriateness conditions of the TQC in question to be (30c),[10] which in this case is satisfied.

(30)   a. $Q = \{\lambda w.\ \Diamond_w(\lambda w'.\ \forall y \leq_{\mathsf{at}} x : \mathsf{drive\text{-}the\text{-}car}_{w'}(y)) \mid x \in \mathrm{D_e}\}$

      b. $\mathsf{Ans}(Q)(@) = \{\Diamond\mathsf{s}, \Diamond\mathsf{m}, \Diamond\mathsf{l}\}$

      c. $\Diamond\mathsf{s} \in \mathsf{Ans}(Q)(@) \wedge \Diamond\mathsf{m} \in \mathsf{Ans}(Q)(@)$

If the first conjunct is itself an *and*-conjunction, the sentence is correctly predicted to be bad (31a). No matter whether the *and*-conjunction scopes below (31b) or above (31c) the modal, the appropriateness condition of TQC cannot be satisfied. Even if the distributivity operator scopes above the modal in the question, (31b) and (31a) will still be false: neither proposition denoted by the conjuncts would be a complete answer to Q.

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[8]In fact, according to [10], Focus Sensitive Coordination always involves sentential coordination.

[9]For QAC to be satisfied, we must assume that singular DPs may combine with distributive quantifiers.

[10]Actually, under certain assumptions of presupposition projection out of conjuncts, a conditional presupposition would be predicted to arise. In many cases, these presuppositions are strengthened, however (the "proviso problem", see [4]). Here we assume this to be the case.

(31) a. #[Tanto a   Sara e   o   Léo] quanto a   Maria podem dirigir o   carro.
         TANTO the Pedro and the Léo QUANTO the Sara   can   drive the car

      b. $\diamond(\mathsf{s} \wedge \mathsf{l}) \in \mathsf{Ans}(Q)(@) \wedge \diamond\mathsf{m} \in \mathsf{Ans}(Q)(@)$

      c. $(\diamond\mathsf{s} \wedge \diamond\mathsf{l}) \in \mathsf{Ans}(Q)(@) \wedge \diamond\mathsf{m} \in \mathsf{Ans}(Q)(@)$

When the value of Q in both conjuncts is the same MA question, the requirements are once again unsatisfiable. If the question in (32a) is raised and only Sara and Maria have a PhD, the set of complete answers to Q will be the singleton in (32b). Consequently, (32c) is false.

(32) a. $Q = \{\lambda w. \, \mathsf{has\text{-}a\text{-}PhD}_w(x) \mid x \in \mathrm{D_e}\}$

      b. $\mathsf{Ans}(Q)(@) = \{\lambda w. \, \mathsf{has\text{-}a\text{-}PhD}_w(\mathsf{s}{\oplus}\mathsf{m})\}$

      c. $\{w \mid \mathsf{has\text{-}a\text{-}PhD}_w(\mathsf{s})\} \in \mathsf{Ans}(Q)(@) \wedge \{w \mid \mathsf{has\text{-}a\text{-}PhD}_w(\mathsf{m})\} \in \mathsf{Ans}(Q)(@)$

The final point to be addressed are the cases in which the conjuncts of the TQC do not answer the same question. Example (9) is repeated below in (33). The two questions being raised are *What does Maria drive?* (34a) and *What does Paula drive?* (34b). For QAC to be satisfied, *Ferrari* must be focused, so we assume that (33b) has the LF in (34c). To avoid claiming that a focused constituent is elided in (33b), we assume that *Ferrari* is moved in an Across-the-Board fashion in surface syntax but is reconstructed at LF. The appropriateness conditions our analysis derives for (33b) are stated in (34), which can be satisfied, as one can easily verify.

(33) a. Q: What does Maria drive? What about Sara, what does she drive?

      b. Tanto a   Maria quanto a   Paula dirigem Ferrari.
          TANTO the Maria QUANTO the Paula drive   Ferrari

(34) a. $Q_1 = \{\lambda w. \, \mathsf{drive}_w(\mathsf{m}, x) \mid x \in \mathrm{D_e}\}$

      b. $Q_2 = \{\lambda w. \, \mathsf{drive}_w(\mathsf{p}, x) \mid x \in \mathrm{D_e}\}$

      c. [[tanto$_{Q_1}$ $\sim_{Q_1}$ Maria drives [Ferrari F]] & [quanto$_{Q_2}$ $\sim_{Q_2}$ Paula drives [Ferrari F]]]

      d. $\{w \mid \mathsf{drive}_w(\mathsf{m}, \mathsf{f})\} \in \mathsf{Ans}(Q_1)(@) \wedge \{w \mid \mathsf{drive}_w(\mathsf{p}, \mathsf{f})\} \in \mathsf{Ans}(Q_2)(@)$

5   Additional considerations

In this section we present additional and independent evidence corroborating the assumption that TQC is an instance of sentential conjunction.

NPs coordinated by TQC can never combine with a predicate and give rise to a non-distributive reading, a phenomenon we dub **anti-collectivity**, following [6]. When combined with mixed predicates like *earn $100.000*, TQC only gives rise to a distributive reading, while *and*-conjunction results in ambiguity between distributive and a non-distributive reading.

(35) a. Tanto a   Sara quanto   a   Maria recebem $100.000.
          TANTO the Sara QUANTO the Maria receive $100.000

          *Sara and Maria earn $100.000 each. / *Sara and Maria earn $100.000 between them.*

      b. A   Sara e   a   Maria recebem $100.000.
          the Sara and the Maria receive $100.000

          Sara and Maria earn $100.000 each. / Sara and Maria earn $100.000 between them.

Similarly, TQC is incompatible with collective predicates:

(36)   a. *Tanto   a   Maria quanto   a   Sara se encontraram.
             TANTO the Maria QUANTO the Sara SE met

       b.   A   Maria e   a   Sara se encontraram.
             the Maria and the Sara SE met
             Maria and Sara met.

Although the facts in (35)-(36) seem to suggest that TQC is some kind of distributive conjunction, it also lacks characteristic properties of distributive constructions. For example, TQC does not licence so-called sentence-internal readings of *diferente* 'different' ([1]). Thus, while (37b), with *and*-conjunction, can be understood as saying that the book Maria read is different from the one Sara read, (37a) can only mean that Sara and Maria bought books different from another book made salient in the discourse (the sentence external reading).[11]

(37)   a.   Tanto   a   Maria quanto   a   Sara leram um livro diferent. *SENT-INTERNAL
             TANTO the Maria QUANTO the Sara read one book different

       b.   A   Maria e   a   Sara leram um livro diferent.   ✓SENT-INTERNAL
             the Maria and the Sara read one book different

Sentential *and*-conjunction patterns with TQC in all these cases (to the exclusion of other forms of conjunction one could assume to exist). In fact, as (38) shows, sentential *and*-conjunction has anti-collectivity properties and does not license an internal reading of *different*, i.e., (38c) cannot be uttered out of the blue to mean that the books Sara and Maria read were different:

(38)   a.   Sara earns $100.00 and Maria earns $100.000.   *COLLECTIVE/CUMULATIVE

       b. *Sara met and Maria met.

       c.   Sara read a different book and Maria read a different book.   *INTERNAL

A fact we do not account for is that TQC of the subject NP controls plural verbal agreement, as shown in (39). Under the assumption that TQC is an instance of sentence coordination coupled with ellipsis, this is unexpected.

(39)   Tanto   a   Maria quanto   o   Vicente am-**am**/*-**a**   peixe.
         TANTO the Maria QUANTO the Vicente love-3PL/-3SG fish
         Maria and Vicente love fish.

Similar facts have been observed in Right Node Raising constructions (see [6] and references therein). However, in those cases plural agreement is optional, whereas here it is obligatory. We leave for future research whether TQC is better analyzed as an instance of ellipsis (as done here) or Right Node Raising. In any case, the compositional account defended here should be implementable in either case.

6   Conclusion

In this paper we have described and analyzed the semantic properties of a type of coordination found in Portuguese and Italian, TQC. While its truth conditional import is that of propositional conjunction, TQC has the feature of imposing certain discourse related requirements on its

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[11][11], and much subsequent literature on *different*, claims that English *and*-conjunction does not license sentence internal readings of singular *different* (*Mary and Sara read a different book*). According to our judgements, and of other speakers we consulted with, this is not the case in either Italian or Portuguese.

conjuncts. This case study is thus yet another illustration of the different ways in which a propositional logic connector, in our case conjunction, is enriched in natural language to convey more than its run-of-the-mill at-issue meaning (as in other focus sensitive coordinators). Furthermore, we can conclude that a semantic definition of complete answers is needed in order to capture TQC's semantic properties in a compositional fashion. Since TQC locally checks that its conjuncts are complete answers, the property of being so cannot be a pragmatic one.

Finally, a remaining question in this study is the connection between TQC and equative constructions. As mentioned in the introduction, the two constructions are built from the same pieces (*tanto* and *quanto*), however there does not seem to be any obvious common semantic property from which to derive this morphological identity. We speculate that at least at a very abstract level of analysis, TQC does involve a notion of equality between two propositions with respect to their relevance in the discourse. We leave this matter for future research.

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