Revisiting the Licensing Condition of the Aboutness Relation

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Abstract

This paper proposes a novel formulation of the aboutness relation that is operative in gapless structures. The notion of aboutness has consistently resisted precise characterization, due to the empirical complexities it exhibits. In this paper, I draw attention to the resemblance between gapless structures and regular predicate-complement sentences. Crucially, Generative Lexicon Theory (Pustejovsky 1995) has shown that predicate-complement constructions, among others, can only be properly interpreted by positing sublexical semantic modules. I show that the same set of modules enables us to predict the licensing conditions of aboutness in gapless structures, and the reason why such a resemblance between two different constructions exists can be found in the semantic nature of topicalization (Heim 1982).

Keywords: *aboutness, coercion, gapless structure, qualia, the semantics of nominals*

1. Introduction

It is a well-known fact that, in East Asian languages, the licensing of a topic-comment structure is subject to a licensing condition broader than operator-variable binding (Xu and Langendoen 1984; Xu 2006). One critical piece of evidence is that topic structure allows gapless extraction, i.e., an element may occur in a dislocated position while lacking syntactic integration into the rest of the sentence (Jacobs 2001). This behavior is also shared by another construction, the relative clause. (1a) illustrates a gapless topic-comment construction, and (1b) a gapless relative construction:[1,2]

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[1] Abbreviations in this paper are based on the Leipzig Glossing Rules. Specifically, the following abbreviations are used in the examples in this paper: CLF= classifier; DEM=demonstrative; IND=indicative; LOC= locative; PFV=perfective; POSS=possessive; REL= relativizer; SBJ=Subject.

[2] In gapless topic structures, the topic bears a clear relation with one element within the comment. Such an element may also occur in what is called a secondary topic position (Li and Thompson, 1981):

(i) *Nei-ge   shudian,   liutong   chu, gongzuo zui   lei.*
    DEM-CLF   bookstore, circulation desk   work   most tiring
    'That bookstore, (it is) the circulation desk (that) work is most exhausting.'

The condition that licenses such a secondary topic construction is the same as that for a regular gapless topic construction with only one left-dislocated topic (primary topic). This paper does not seek to distinguish

(1)   a.   *Nei-ge*   *shudian,*   *ta zai*   *liutong*   *chu*   *gongzuo.*   (Chinese)
              DEM-CLF   bookstore,   he LOC   circulation   desk   work
              'That bookstore, he works at the circulation desk.'

        b.   [*Ta zai*   *liutong*   *chu*   *gongzuo*]   *de*   *nei-ge*   *shudian*
              he   LOC   circulation   desk   work   REL   DEM-CLF   bookstore
              'The bookstore that he works at the circulation desk.'

In (1a), the topic does not link to (i.e., coindex with) an argument slot within the comment. Similarly, in (1b), the relative head does not link to an argument slot within the relative clause.[3]

Chao (1968) was the first to suggest that gapless extraction in a topic structure is licensed by an aboutness relation. This means that for an element to be topicalized, it does not need to be subcategorized for by a predicate, but only requires that the predicate be *about* it. Kuno (1976) adopts this approach and further proposes that the relative structure is also licensed by an aboutness relation. Specifically, Kuno formulates the following constraint:

(2)   THEMATIVE CONSTRAINT ON RELATIVE CLAUSES (Kuno 1976)
       A relative clause must be a statement about its head noun.

While the notion of aboutness is rather intuitive, we still need a precise formulation of what it means to say *A is a statement about B,* for the licensing condition to be predictable. However, to date there has not been much work done on this problem. Gundel (1988) suggests that any entity that serves as a topic needs to have a certain high degree of salience at the given point of utterance in the discourse. This most often means that such an entity is being subcategorized for by a predicate, but even when this is not the case, salience might still be achieved. The problem is that Gundel does not specify exactly when those non-subcategorizing cases arise. To work out such details, we crucially need to explain explicitly how a proposition (with a predicate) is related to the topic entity during the interpretation. Lambrecht (1994: 54) seeks to characterize this relation as: "a proposition is interpreted as

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between a regular gapless topic sentence and a secondary topic sentence. Indeed, the theory developed here is compatible with a second element taking a dislocated position.

3   I will illustrate the licensing of the aboutness relation using Chinese throughout this paper. However, see Xu (2006: 157-158) for an account of how the aboutness relation applies in other East Asian languages. Some examples similar to the ones given in Chinese are provided below:

   (i)   a.   *Ho-o*   *naqho yi*   *vey o.*   (Lahu)
              elephant-TOP   nose   long   IND
              'Elephants, noses are long.'

         b.   *Sakana-wa*   *tai-ga*   *oisii.*   (Japanese)
              fish-TOP   red.snapper-SBJ   tasty.
              'Fish, red snapper is tasty.'

         c.   *Pihengki-nin*   *747-ka*   *khi-ta.*   (Korean)
              airplane-TOP   747-SBJ   big-IND
              'Airplanes, the 747 is big.'

   (ii)   *Suyeng-nin*   *Waikiki-ka*   *coh-ta.*   (Korean)
              swimming-TOP   Waikiki-SBJ   good-IND
              '(As for) swimming, Waikiki is good.'

constituting relevant information (about the referent)…". Nevertheless, this essentially restates the question rather than providing an implementable working definition.

Apart from the definitional issue, an aboutness approach to gapless structures also faces an empirical problem. As Huang et al. (2009) point out, there are cases where the topic in a gapless topic sentence cannot be the head of a corresponding gapless relative clause. Also, there are cases where the head of a gapless relative cannot be the topic for a corresponding gapless comment. The former case is illustrated in (3), and the latter case is exemplified in (4) (Huang et al. 2009: 43):

(3) a. *Shuiguo, wo zui   xihuan xiangjiao.*
         fruit,   I   most   enjoy   banana
         '(Speaking of/As for) fruit, I enjoy (eating) banana most.'

     b. *[Wo zui   xihuan xiangjiao] de   shuiguo
         I   most   enjoy   banana   REL   fruit
         'The fruit that I enjoy (eating) banana most'

(4) a. *Nei-ge   shudian,   ta   mai   shu.*
         DEM-CLF   bookstore,   he   bought books
         'That bookstore, he bought books.'

     b. [Ta   mai   shu]   de   nei-ge   shudian
         he   buy   books REL   DEM-CLF   bookstore
         'The bookstore that he buys books'

Given the assumption that a uniform aboutness relation licenses both the topic and the relative structure, it is problematic for the aboutness approach to address such discrepancies.

This paper proposes a solution to the above-mentioned conceptual and empirical issues regarding the aboutness relation. In a nutshell, I propose that a uniform aboutness relation must be constrained by two construction-specific semantic requirements imposed on the topic structure and the relative structure, respectively. By giving a formal characterization of a semantic interpretive condition specific to the topic structure and another one for the relative structure, I show that both the similarities and dissimilarities between the two structures in gapless extraction follow naturally from the interaction between construction-specific semantic conditions and the aboutness relation.

The rest of this paper is structured as follows: in section 2, several more recent approaches to the aboutness relation are reviewed. Section 3 characterizes the aboutness relation in terms of association. I then show that the feature geometry theory of sublexical representations within nominals developed in Pustejovsky (1995) can be applied to topicalization. Furthermore, I argue that a restrictiveness condition is independently needed in relativization. The aboutness relation, when applied to particular constructions, interacts with construction-specific semantic constraints. Section 4 discusses the implications and concludes the paper.

2. Previous theories

This paper first reviews several more recent approaches that bear directly upon the issue of the aboutness relation. I show that given the way these theories are formulated, they are unable to sufficiently predict the similarities and dissimilarities between the topic and relative structures as discussed above.

2.1. Huang et al. (2009)

For Huang et al. (2009), the topic-relative discrepancies as observed in (3-4) can be explained because the gapless topic and the relative involve different mechanisms and should be treated separately. Specifically, they propose that, on the one hand, the gapless topic structure is licensed by the aboutness relation. In Huang et al. (2009), this relation is simply assumed to exist, without any commitment as to its exact formulation. Crucially, the central claim is that the aboutness relation only applies to a topic structure.

On the other hand, they argue that gapless relatives are not licensed by the aboutness relation. Indeed, a strong claim is put forward, in that gapless relatives are not real relatives, but rather a type of nominal expression. This is motivated by gapless relative examples such as the following (Huang et al. 2009: 234):

(5)   a.   [*Ta   zuoe*]   *de*   *houguo*
           he   do.evil   REL   consequence
           'The consequence of his doing evil.'

     b.   [*ta   kaoshi*]   *de*   *jieguo*
           he   take.test   REL   result
           'The result of his taking a test.'

     c.   [*Ta   changge*]   *de*   *shengyin*
           he   sing.song   REL   voice
           'The voice of his singing a song.'

In all these examples, Huang et al. argue, the English translations are nominal expressions that take PP complements. Similarly, they argue that the head nouns in these Chinese relatives, *e.g. houguo* 'consequence', *jieguo* 'result' or *shengyin* 'sound', are used in their relational senses, where their denotations do not exist independently. In this respect, they resemble inalienable possession nouns, such as *father* or *sister*. Based on these observations, Huang et al. believe that, just like inalienable possession nouns take PP complements, the structure in (5) for Chinese is actually a complement-taking NP, as opposed to real relatives that contain gaps.

However, reducing all gapless relatives to the PP complements of relational nouns is not empirically accurate. Such an analysis crucially hinges upon the head noun having a relational sense. As such, nevertheless, it fails to extend to cases where gapless relatives occur with a non-relational head noun, such as in (1) (repeated below).

(6) a. [*Ta zai liutong chu gongzuo*] *de nei-ge shudian*
         he   LOC circulation desk work   REL DEM-CLF bookstore
         'The bookstore that he works at the circulation desk'

     b. [*Ta mai shu*] *de nei-ge shudian*
         he   buy books REL DEM-CLF bookstore
         'The bookstore that he buys books'

While it makes sense to claim that nouns such as *consequence* generally take a complement (either overtly or implicitly), it is much harder to contend that *a bookstore* cannot stand on its own.[4] It is worth noting that gapless examples similar to (6) abound in Chinese. One can easily utter the following:

(7) a. [*Dajia zuihou dou jiehun-le*]   *de nei-bu dianshi ju*
         guys   in.the.end all get.married-PFV REL DEM-CLF TV   serial
         'That TV serial that all the guys finally got married'

     b. [*Gongzhu aishang-le yi-ge jiangjun*] *de nei-ben xiaoshuo*
         princess fall.in.love-PFV one-CLF general REL DEM-CLF novel
         'That novel that the princess fell in love with a general'

     c. [*Fanduipai shitu touyun huoyao zhizao baozhaan*] *de nei-ge yihui dalou*
         opposition try smuggle.in inflammables make explosion REL DEM-CLF parliament building
         'That parliament building that the opposition tried to smuggle in explosives to create a blow-up'

     d. [*Zhengfu xuanbu zheng-ge guojia jinru jieyan*] *de nei-ci kongbu xiji*
         government announce whole country enter curfew REL DEM-CLF terrorist attack
         'The terrorist attack that the government announced a curfew for the entire country'

In (7a), for instance, a better translation in English would be *that TV serial where all the guys finally got married*, in which the head noun corresponds to an adjunct slot within the relative clause through the use of the adverbial relativizer *where*. On the contrary, in Chinese, it is fine to use the generic relativizer DE, thereby creating a genuine gapless structure. In the same vein, (7b-d) need to be analyzed as gapless relatives. This fact again poses a severe challenge to Huang et al.'s (2009) analysis, since it would be rather unconvincing to suggest that head nouns such as *a novel* or *a terrorist attack* inherently take a PP complement and are construed as relational nouns, without straining the meaning of "relational" to its extreme.

Moreover, although not all gapless relatives can find corresponding gapless topic structures, by reducing gapless relatives to PP complements we still miss a possible explanation for why an intuitively strong link exists between the topic and relative structures.

Based on the above evidence, it seems tempting to maintain that a gapless relative *is* a real relative structure. If they are indeed bona fide relatives, we still need to look for licensing

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[4] One diagnostic for relational nouns is that they force a bound reading in quantificational contexts (Asudeh 2005: 376). In (i), the indefinite *consequence* cannot scope above the universal quantifier *every* in the subject position to induce a reading where a certain consequence is common to all evil-doings. Instead, the only natural reading is that every evil-doing leads to *its own* consequence (*i.e.* the quantifier binds the relational noun). By contrast, (ii) readily allows a non-bound reading, where *a library* outscopes *every*.

(i)   *Every evil-doing has its consequence.*
(ii) *Every reader has been to a library.*

conditions for gapless relatives, and search for reasons that account for their similarities and dissimilarities with gapless topic structures.

2.2. Pan and Hu (2008)

Pan and Hu (2008) provide a fleshed-out formulation of the aboutness relation for topic structures. They characterize the relation between the topic and the comment in terms of set intersection. Specifically, a comment is *about* a topic when there exists an element in the comment that denotes a set whose intersection with the set denoted by the topic is non-empty (Pan and Hu 2008: 1970). This definition renders an explanation for gapless topic examples such as in (3a) (repeated below):

(8)   *Shuiguo,   wo   zui   xihuan   xiangjiao.*
      fruit,   I   most enjoy   banana
      '(Speaking of/As for) fruit, I enjoy (eating) banana most.'

Here the NP element *banana* within the comment can be construed as denoting the set of all bananas. The topic, *fruit*, denotes all those entities that instantiate the property of being a fruit, namely *all kinds of fruit*. As such, Pan and Hu argue that *fruit* can be construed as a set of sets that includes the set of apples, the set of pears, and the set of bananas, etc. In this way, the set denoted by *banana* is simply one element within the superset denoted by *fruit*, such that the intersection of *fruit* and *banana* yields the set of bananas. Hence the nonempty requirement is fulfilled and the structure in (8) is successfully licensed.

Despite its ability to account for a number of examples within topic structures, this formulation, as it stands, fails to predict the discrepancies between gapless topic and relative structures. This is because by explaining the well-formedness of (8) (=(3a)), the set intersection condition will not be able to explain why (3b) is bad. Therefore, the consequence will be that this formulation of aboutness cannot extend itself to cases with gapless relatives, hence the intuitive generalization about the topic-relative similarities is again missing.

Furthermore, even within the topic structures, Pan and Hu's formulation is still too restrictive. While it accounts for examples such as (3a), it is unable to explain the fact that (1a) (repeated below) is also good:

(9)   *Nei-ge   shudian,   ta   zai   liutong   chu   gongzuo.*
      DEM-CLF   bookstore, he   LOC   circulation desk work
      'That bookstore, he works at the circulation desk.'

Because in (9) the aboutness relation is licensed, Pan and Hu would have to argue that there exists a nonempty set intersective relationship between the set denoted by the topic, *bookstore*, and the set denoted by the element within the comment, *circulation desk*. However, if we follow the logic in the case with *fruit*, then *bookstore* denotes a set of all the sets of entities that instantiate the property of being a bookstore, this gives us sets of *all kinds of bookstores*, not any sets of subcomponent parts of a bookstore. As such, there should not be

any shared set elements between the set content of *bookstore* and that of *circulation desk,* because the latter would denote a set of circulation desks.

A possible objection could be raised here: it might be suggested that (9) is not a real gapless extraction, because, in Chinese, *bookstore* may occur together with *circulation desk* in a single possessor phrase (PossP), where *the bookstore* occupies the possessor position and *the circulation desk* the possessee position, just like the English [[*bookstore*]'s *circulation desk*]. As such, one might reanalyze (9) as involving an overt extraction of the topic from the possessor position of a PossP within the comment. However, not all meronymic (part-whole) relations between a topic and an element within the comment can be treated as an extraction from PossP. For example, (10a) is an acceptable gapless topicalization sentence. Meanwhile, as (10b) shows, the NP within the comment, *Jude Law*, cannot be seen as the remnant of a PossP, because in Chinese it is not possible to encode the relation between a member of the cast and the movie in terms of possession.

(10) a. *Zhe-bu   dianying, qiudeluo biaoyan-de   youdian   rangrenshiwang.*
          DEM-CLF   film   Jude.Law perform-ADV   a.little.bit disappointing
          'This movie, Jude Law performed in a disappointing manner.'

     b. **Zhe-bu   dianying   de   qiudeluo*
          DEM-CLF   movie   POSS   Jude.Law
          'Jude Law of this movie'

This suggests that a reanalysis approach is inadequate. We need to allow the aboutness relation to encompass the entirety of part-whole relations that systematically obtain between two NPs in a gapless topic, and it is not clear how Pan and Hu (2008) would handle this.

More seriously, the topic in a gapless topic structure is not restricted to a supercategory in a hypernymy or meronymy relation. In (11), the topic is a deverbal noun:

(11) *Hejiu,   ta zui   xihuan   danxiaomaipi.*
      drinking   he most enjoy   pale ale
      '(Talking about) drinking, he really enjoys pale ale most.'

In fact, one may felicitously utter both (11) and (12), where a hypernymy relation is involved:

(12) *Pijiu, ta zui   xihuan   danxiaomaipi.*
      beer   he most enjoy   pale ale
      '(Speaking of) beers, he really enjoys pale ale most.'

(12) is similar to (8) in that a hypernym occupies the topic position and relates to a hyponym in the comment. Unlike in (12), the topic in (11) does not denote any entities, but denotes events or actions. While the hypernymy relation existing between *beer* and *pale ale* in (12) can be captured in Pan and Hu (2008), it would be very implausible to believe that some set intersective relation exists between the action of drinking and the entity of *pale ale*.[5] It still seems

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5   In Hu and Pan (2009), a further condition is added, in which it is stipulated that the topic and the element within the comment that is related to the topic must bear a predicate-subject relation. For example, in saying *Fruit, I enjoy banana most*, *Fruit* serves as a nominal predicate over *banana*, leading to a paraphrase as:

intuitively clear that the event of drinking can be related to certain kinds of drinks, such as *pale ale*, and a proper characterization of aboutness should capture this intuition. For this reason we need to look beyond set intersection to search for a proper way to characterize aboutness.[6]

2.3. Kehler (2002)

Kehler (2002) has another proposal for the aboutness relation. Borrowing from Lakoff (1986), Kehler points out that extraction that does not leave a gap behind can be seen as just a subcase of the broader extraction phenomena that involve a *partial identity* relation between two entities. This means that a dislocated element only needs to be identical to an *in situ* element with regard to one property. For other properties, it may be underspecified. To illustrate this, Kehler presents examples in English such as the following (Kehler 2002: 124):

(13)   *Speaking of reading materials, John bought the books and Bill bought the magazines.*

Here the preposed element *reading materials* is not totally identical with either of the two NPs in the two conjuncts, *the books* and *the magazines*. Crucially, it is specified with a sortal type that is shared by both *the books* and *the magazines*, while being underspecified with regard to other properties, hence it subsumes both entities (Lakoff 1986).

The notion of underspecification in Kehler's formulation of aboutness avoids Pan and Hu's problem of over-restrictiveness, but it is too permissive. For one thing, the topic-relative discrepancies such as those in (3a) and (3b) are left unexplained. Moreover, even if we focus on topic structures alone, this theory still overgenerates. To see this, we can go back to (8) and allow *fruit* and *banana* to share the sortal type (i.e. *banana* is a subtype of the sort *fruit*), while leaving *fruit* underspecified with the other properties of *banana* (i.e. *fruit* does not bear those properties specific to *bananas* but not to other subtypes of *fruit*). Similarly, we are tempted to say that *a circulation desk* and *a bookstore* share a certain property, and the same for the event of *drinking* and *a pale ale*. The problem, then, is that for lack of a more constrained definition of what kind of properties can be shared and what cannot, we are unable to explain why (4a) (repeated below) is bad:

(14)   **Nei-ge   shudian,   ta   mai   shu.*
       DEM-CLF   bookstore,   he   bought   books
       'That bookstore, he bought books.'

"Banana is fruit." While this proposal is apparently an attempt to add some motivation to the set intersection condition, it is still not clear why a predication relation in particular needs to be established between the topic and its correlating element. Moreover, making the topic a nominal predicate only works in the sortal typing case. In *Bookstore, the circulation desk has the heaviest workload,* we cannot say "the circulation desk is a bookstore". Also, in *Drinking, I enjoy pale ale most*, we cannot say "Pale ale is drinking." Therefore, this new interpretive condition still falls short in predictive power.

[6]   In addition, there is one conceptual issue with the set intersection approach: it is not clear why it has to be a set intersective relation that licenses all cases of the topic-comment structure. A set intersective relation is only one of the many ways two things can be said to be about each other. Therefore this constraint, thus formulated, seems more stipulatory than explanatory.

In other words, Kehler's theory fails to provide an explanation of what prevents *a bookstore* and *books* from sharing a certain property. From this perspective, it is too powerful and it is not stated in a predictive manner.

To sum up, in this section, I have discussed the problems with previous approaches to developing a predictive explanation for the variety of environments where the aboutness relation can be licensed. In what follows, I show that these environments can be categorized into several natural classes if we look into what elements are relevant in the interpretation of a predicative relation.

Before proceeding, it is worth noting that this paper shares the assumption expressed in the above-mentioned approaches that the aboutness relation does exist as a semantic licensing condition for gapless structures, and the point on which I disagree with these approaches is what is the best way to characterize this relation. However, there exists an opposing view to such an assumption (Shi 2000; Huang and Ting 2006), in which it is proposed that the preposed element in a Chinese gapless topic-comment structure should be reanalyzed as some syntactic constituent tangential to gapless topichood.

For example, Shi (2000: 393-395) proposes that in the following sentences, the sentence-initial NPs are not really dangling topics (i.e. gapless topics), but actually adverbial PPs with empty P heads.

(15) *Zhe-jian   shiqing,   ni   bu   neng   guang   mafan   yi-ge   ren.*
      this-CLF   matter   you   not   can   only   bother   one-CLF   person
      '(As for) this matter, you can't just bother one person.'

(16) *Shengwu-lunlixue,   wo   shi   men-wai-han.*
      biology-ethics   I   be   door-out-man
      '(With regard to) bioethics, I am a layman.'

In both cases, Shi claims that the preposed PP is a sentential adverbial that does not enter into an aboutness relation with any subparts of the clause that follows the PP, so that (15-16) are essentially no different from a sentence such as *Yesterday/That way, he went home late.* Shi's proposal is later modified by Huang and Ting (2006), who maintain a reduced PP analysis for (16), but treat (15) as involving a regular "gapped" topic-comment structure. This is because the predicate *bother* allows double objects, and the NP *matter* can be an object for the predicate, as the following illustrates (Huang and Ting 2006:125-126):

(17) *Wo   xiang   mafan   ni   yi-jian   shi.*
      I   want   bother   you   one-CLF   matter
      'I want to bother you with something.'

Huang and Ting also bring up another example, which is slightly modified from Shi's original example, illustrated as follows:

(18) *Nei-chang   Wenbudun   wang-qiu   sai,   xingkui   da-yu   ting-le.*
      that-CLF   Wimbledon   net-ball   match   fortunately   big-rain   stop-PFV
      '(As for) that Wimbledon match, fortunately the heavy rain stopped.']

Drawing upon works such as Bresnan and Grimshaw (1978), they treat the sentence-initial NP in (18) as an NP adverbial, which, similarly to the PP adverbials in (16), is not related to the following clause via an aboutness relation.

This paper acknowledges that the examples in (15), (16) and (18) most probably do not involve gapless topic structures. However, this does not mean that ALL preposed NPs can be reanalyzed in similar ways. As a matter of fact, I think that the examples mentioned in Shi and in Huang and Ting are different from the gapless examples given in this section, and only the latter involve a genuine aboutness relation.

As for (15), I agree with Huang and Ting's analysis that this involves a fronted regular NP argument. As for (16), I agree that this structure is not a gapless topic-comment structure, but I think it is better analyzed as a case of relational nouns, rather than a case of reduced PPs. That is, in (16), the complement NP in the clause, *menwai han* 'layman', has a relational sense. Following the standard diagnostics for relational nouns given in Asudeh (2005), we can see that the NP *layman* must receive a bound reading when interpreted in a sentence with a universal quantifier subject (see also footnote 4):

(19)   *Every field in this university is presided over by a layman.*
         'Every field has its own layman that presides over this field.'
         *'There exists a layman, such that he/she presides over every field.'

If *layman* is a relational noun, then we can adopt the standard analysis that a relational noun subcategorizes for a second, optionally implicit argument (Barker 1995), in which case the preposed NP in (15) is exactly the second argument of *layman* (i.e. the NP *layman* takes both an argument referring to an individual, and a second argument referring to a field such as bioethics, of which that individual is a layman). If this analysis is correct, then it is true that (16) should be excluded from the discussion about gapless topics. Therefore, (15-16) actually fall within the domain of a canonical "gapped" topic-comment structure. However, it is clear that most of the gapless examples given in this section do not allow for a relational noun reading, nor can they be a second object of the comment predicate. Thus, I believe that they still need to be analyzed as having a gapless topic-comment structure. The only viable option for Shi and for Huang and Ting would be to say that these examples all involve reduced PPs or NP adverbials. I think one reason why retaining gapless topics is a more desirable result is that it enables us to unify the gapless topic-comment structure and the corresponding gapless relative structure. An analysis that relies on reduced PP forms or NP adverbials would have difficulties extending to gapless relative cases, given that in Chinese, PPs and NP adverbials do not normally serve as the heads of restrictive relative clauses. To rescue such an analysis, one would have to treat gapless relatives as following a different set of mechanisms, as an important generalization is missing.

3. Theory

3.1. Sublexical representation

First, I start by revisiting Lambrecht's informal characterization of the aboutness relation, which I discussed in the first section. Lambrecht (1994) notes that in all the sentences with an aboutness topic, the predicate constitutes relevant information about the topic. It follows from this formulation that the aboutness topic needs to be predicated over by the sentential predicate. It is not obvious how this is possible, since overtly a transitive predicate in a gapless topic sentence already takes a complement as its semantic argument. In what follows, nevertheless, I will argue that Lambrecht's proposal is valid, and I will expand on this proposal by showing how an element not located in the syntactic complement position of a predicate can be predicated over semantically. Yet before we go there, it is worth pointing out that this formulation is too strong to capture the notion of aboutness. In the intuitive sense, to say that a predicate (and the proposition that contains this predicate) is *about* a certain entity only requires that entity to be related to the predicate during the interpretation. Therefore, I propose that the licensing condition for the aboutness relation is a general one: a proposition is a statement *about* an entity if that entity is present in the semantic representation of the proposition's predicate at the logical level. Here I am taking a theory-neutral position and assume a logical level to be a representational component in the grammar that is relevant for interpretation. It corresponds to the Logical Form in generative grammar and other interpretive levels in nontransformational frameworks. I remain agnostic as to how the logical level is linked to syntax or other components in the grammar as well as to its modularity, with the sole assumption that we retrieve our semantic interpretation of any given sentences through reading off the representations at this level.

Interpretation-wise, the semantic representation of a predicate includes its arguments as well as its nonargumental elements. My formulation predicts that nonargumental elements also play a role in aboutness. However, I follow Lambrecht's notion and assume that in topic structures, only entities that can be directly predicated over by the predicate license the aboutness relation. I argue that this constrained nature in topic sentences arises from the interaction between the general aboutness condition and an independently motivated semantic requirement specific to topicalization. Nonetheless, before I specify how the interaction works, I will first answer the question of what elements can be predicated over. My central tenet is that in interpreting predication, a richer representation of the argument in terms of sublexical modules is warranted within a semantic schema for the predicate.

There is independent evidence that sublexical information of a nominal complement (instead of the nominal as an encapsulated whole) must be present within the semantic representation for the predication relation to be performed. One of the most convincing arguments is provided by Beard (1991), who argues that in adjectival modification, the readings we get can *only* be explained if the adjectival modifiers have access to the information of the modified nouns that is below the lexical level. Beard illustrates this with the examples below:

(20)   *Old friend, good athlete, former diplomat, genuine poet*

For example, *old friend* is ambiguous between a reading which means the friend is old in age, and a reading in which the person referred to has been a friend of someone for a long period of time. In the latter case, importantly, *old* modifies the friendship, not the friend *per se*. In other words, modification pertains to the sublexical information that denotes the making of friends (i.e., the status of being friends is initiated with the establishment of a friendship). This interpretation cannot be specified in structural terms, since the head noun *friend* is not morphologically complex.[7]

Similarly, modification needs to reach below the word level for the other NPs given in (20). The expression *a good athlete* says nothing about the athlete as being a good person, instead the adjective pertains to the function of the athlete, his/her property of practicing athletic activities. In the same vein, *a former diplomat* cannot mean that the diplomat as a person is former, but rather that the person practised diplomacy in the past, not at present. Finally, *a genuine poet* refers to the poet's poetry-writing being genuine, not the person being genuine.

Pustejovsky (1991: 89) propounds that other sublexical features also play a role in interpretation. He discusses the following examples:

(21)   *A fast typist, a long record*

In *a fast typist*, the modifier not only cannot pertain to the typist as a person, it is not even interpreted as an adjective, but as an adverb. Following standard assumptions in compositional semantics, where event modifiers take a verbal predicate as input and output a derived predicate, Pustejovsky argues that the modifier *fast* here takes as an argument an eventive predicate feature that lies within the NP *typist*. In a parallel way, in *John put on a long record during the dinner*, the modifier *long* is an eventive modifier, and one sublexical feature within the nominal *record* denotes the event of a record being played.

Aside from modification, Pustejovsky further shows that predicating into the sublexical level is witnessed in other environments. In (22), sublexical access is needed to explain the two readings associated with the following sentence:

(22)   a. *Dana began a novel.*
        b. Reading A: Dana began a new novel (to read).
            Reading B: Dana began a new novel (to write).

According to Pustejovsky, the ambiguities here receive a natural explanation if we assume that the predicate *begin* takes different semantic sublexical elements as arguments. Reading A arises when the argument specifies the information of the function/purpose of a novel (that is, the function/purpose of a novel is to be read). On the other hand, reading B is available when

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7   Similar observations have been proposed elsewhere. For example, Morzycki (2009, 2012) argues that in the expression *enormous idiot*, the adjective modifies *idiocy*, which denotes the coming into being of an idiot (that is, a person is called an idiot if the property of idiocy can be assigned to him/her). Again the expression cannot mean that the idiot himself is enormous (has a large build). Therefore, the adjective must modify the idiocy part within the semantics of the nominal, since the nominal is not structurally decomposable.

the sublexical argument specifies information about the origin or the bringing about of the novel (that is, a novel comes about when it's written).

Furthermore, in the following example (Pustejovsky 1991: 88):

(23)   *Most commercial pilots prefer Heathrow to Kennedy.*

The main verb *prefer* is vague, and needs to be enriched by some ellipsed predicate such as *landing* or *taking off* for the entire sentence to receive a complete interpretation. Crucially, the filling out of some ellipsed predicates is enabled only when the complements *Heathrow* and *Kennedy* are understood in terms of their sortal type, as airports.

Generalizing over the above evidence, Pustejovsky argues that in addition to structural modules, we also need modules of interpretation to be specified *within* the lexicon. Following a tradition that goes as far back as Aristotle, Pustejovsky (1991: 76) labels the following four modules of interpretation as four qualia (singular form: quale):

(24)   QUALIA:
CONSTITUTIVE: the relation between an object and its constituent parts;
FORMAL: the sortal information which distinguishes it within a larger domain;
TELIC: its purpose and function;
AGENTIVE: factors involved in its origin or "bringing it about".

According to Pustejovsky, although not all lexical items carry a value for each quale, the four-way distinction captures an important generalization, in that they encode the sublexical information relevant for interpretation in natural languages and they are formulated in a way that is richer than a purely decompositional approach of positing polysemous senses or some invisible word-level syntax.

By positing qualia, Pustejovsky shows that we can readily account for the sublexical readings in the above modification and predication examples. The only extra step is to adopt several widely used type-shifting operations to make these qualia modules accessible to external modification/predication.[8]

First, in adjectival modification, the standard view is that a modifying adjective expresses a function that composes with the nominal being modified. We will modify the functional composition rule, such that the function expressed by the adjective applies to a particular quale within the nominal it composes with. This can be done by specifying that the adjective looks for a certain type, and if a quale in the nominal has the specified type information, the function will bind that quale. More generally, Pustejovsky proposes the following *selective binding operation* (Pustejovsky 1990:129):

(25)   *If α is of type $<a, a>$, β is of type b, and the qualia structure of β has a quale, q_β, which is of type a, then $\alpha\beta$ is of type b, where $\|\alpha\beta\| = \beta \cap \alpha(q_\beta)$.*

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8   In the following I will use a simplified representation that is adapted to our discussion about topicalization and update semantics, while preserving the key procedures involved in arriving at the desired semantic interpretation. Namely, a nominal projects a certain quale via several mechanisms.

When applied to modification, (25) allows the adjective to functionally apply to a quale, the resulting property is then conjoined to the property that the nominal itself denotes. For instance, in *fast typist*, *fast* is a functor taking an eventive argument, so it ranges over the telic quale of *typist*. This property is then conjoined to the nominal's own property of *being a typist*, thereby obtaining the reading *a typist who is fast at typing*. Similarly, in *a long record*, *long* predicates over the telic quale of *play* in the nominal *record*, so that we get the reading *a record whose playing time lasts long*. Similarly, *old* is a stative predicate that also takes an eventive argument, this time over the agentive quale of *friendship* in the nominal *friend*. In sum, by applying selective binding, the modification parts in the denotations of phrases *fast typist, long record*, and *old friend* are represented as in (26):

(26) $\|$fast typist$\|$: $\lambda x[\dots \text{Telic}= \lambda e[\text{type'}(e,x) \wedge \text{fast}(e)]\dots]$
        $\|$long record$\|$: $\lambda x[\dots \text{Telic}=\lambda e [\text{play'}(x) \wedge \text{long}(e)]\dots]$
        $\|$old friend$\|$: $\lambda x \exists y[\dots \text{Agentive}=\lambda e^s [\text{friend-state'}(e^s, x, y) \wedge \text{long}(e^s)]\dots]$

Second, Pustejovsky proposes that we can incorporate type coercion into the operation of functional application: A functor requires its argument to be of a particular type, and if the argument does not match that type, it shifts its existing type to the specified type, and then embeds the existing type into the resulting type. This idea is very similar in spirit to the selective binding process. Below I take up the idea of Pustejovsky-style coercion and propose a slightly modified functional application rule that applies specifically to the predicate-complement relation, as it bears directly upon the formulation of the aboutness relation (to be explained later). This rule is formulated as in (27):

(27)   *If α is of type $<a,b>$, and β is of type c, and if there is a q_α such that $q_\alpha (\alpha)$ results in type a, then $\beta(q_\alpha (\alpha))$ is of type b.*

(27) specifies that a verb takes a particular type of complement. When a nominal has one quale that bears the right type, the nominal projects the quale-denoting expression as the argument that composes with the predicate, and embeds the nominal type within this expression. I argue that (27) enables us to obtain the right reading for examples such as (28a). The functional application with type coercion leads to the structure schematized as in (28b):

(28)   a. *John enjoys a pale ale (to drink).*

        b.
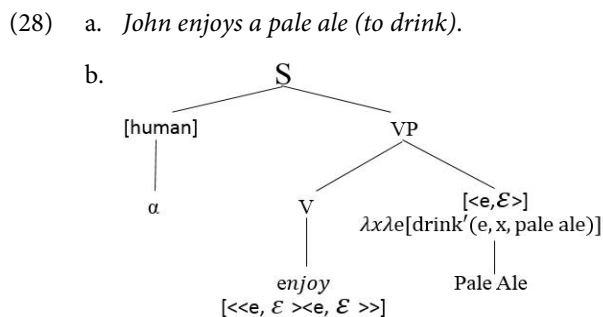
In this case, the verb *enjoy* selects an eventive argument, which the nominal *pale ale* satisfies by projecting its telic quale. Aside from complement coercion, Pustejovsky proposes another coercion operation dedicated to the typing relation. This is motivated by the need for

nominals to project their sortal typing information when composing with predicates. The following are the relevant examples that I discussed above:

(29) a. *John enjoys drinking pale ale (beer).*
      b. *He enjoys eating banana (fruit) most.*
      c. *Most commercial pilots prefer landing at Kennedy (airport) to Heathrow (airport).*

Unlike the case with the telic quale (where the actual arguments of the predicates are events), in (29) the NP complements are actual arguments of their respective predicates. However, they need to be of the proper type to satisfy the predicates' selectional requirements. In each of these cases, a predicate selects a given sortal type, and the complement NP bears the subtype of that sortal type. Thus, for these complements to function as a legitimate argument, the subtyping relation has to be subject to a coercion operation, so that a shift in type occurs. The projection of this subtyping relation is crucial in that it acts to formally relate the type of the actual object to the lexically specified type. The subtyping coercion is schematized as follows:

(30) $\alpha: \sigma_1, \Theta[\sigma_1 \leq \sigma_2]: \sigma_1 \to \sigma_2$ (Θ: coercion operator; $\leq$: subtype relation)

In accordance with (30), in (29a), the verb *drinking* does not directly select for the type of *pale ale*, instead it selects for the type *drinks*. In this way, *pale ale* participates in the drinking event by shifting its type to its immediate supertype, *beer*, and afterwards *beer* further undergoes a type shifting to *drinks*:

(31) a. Θ [pale ale $\leq$ beer]: pale ale $\to$ beer
      b. Θ [beer $\leq$ drinks]: beer $\to$ drinks

3.2. Explaining topicalization

It becomes clear from the discussions in the previous subsection that a correlation exists between Pustejovsky's predicate-complement sentences involving qualia structure, and the well-formedness condition on Chinese gapless topic sentences. Below I argue that this correlation is not coincidental. Rather, the predication relation over qualia structure, as discussed above, finds a natural fit with the semantics of topicalization.

I start by revisiting Lambrecht's informal formulation of aboutness topics: a topic needs to be the discourse-salient referent that a predicate constitutes information about. In the first section, we leave it unresolved why this should be the case. As a matter of fact, this notion concerning the aboutness topic has sound motivations. A consensual position within the previous literature (Reinhart 1981; Heim 1982; Kamp and Reyle 1993) is that the process of topicalization can be seen as a dynamic updating process. Very briefly, the ontological objects within our universe of discourse are kept in our mental representation as files. Files are related by properties. At any given point, there will be a certain *n*-place predicative relation taking *n* objects as arguments that fall within our attentional focus. The objects thus related by the

predicate become salient, and the property of this relation updates to the files corresponding to these objects (Recanati 1996, 2012).

If we think of the comment in a topic sentence as a predicate within attentional focus updating properties, the aboutness relation specific to topicalization can be reformulated as follows:

(32)   LICENSING CONDITION OF THE ABOUTNESS RELATION (TOPIC-SPECIFIC)
       A comment is about a topic if the topic is a semantic argument of the predicate in the comment.

Given what we have shown in the previous subsection, the argument a predicate takes need not be restricted to the actual object argument represented by a nominal. In a functional composition process between a predicate and its complement NP, a certain quale of the nominal can be directly predicated over, depending on the type compatibility with the predicate. Crucially, given that predication targets quale, a quale predicated over by a relation in attentional focus will become salient and receive the update. What this means is that the quale-denoting expressions will be able to satisfy the aboutness condition specified in (32). Here I will allow ontological objects to range over not just entities, but also events, abstract sortal types, and other abstract objects. This is apparently needed given that these are what quale-denoting expressions refer to.

Now if we go back to the sentence in (33):

(33)   *Shuiguo, wo zui   xihuan xiangjiao.*
       fruit,   I   most enjoy   banana
       '(Speaking of) fruit, I enjoy (eating) banana most.'

The comment part of this construction is identical with the regular predicate-complement sentence I discussed in (29). Here, a formal quale becomes salient, because the subtyping relation types the complement NP and triggers a coercion operation in order to satisfy the selectional requirement of the verb *enjoy eating*. As a result, the formal quale-denoting expression, *fruit*, is selected as one of the arguments of the verb. In (34), the telic quale-denoting expression may serve as the topic:

(34)   *Hejiu,   ta zui   xihuan danxiaomaipi.*
       drinking,   he most enjoy   pale.ale
       '(Talking about) drinking, he really enjoys pale ale most.'

Again, exactly similar to the regular predicate-complement sentence, *he enjoys pale ale (to drink)*, the drinking event becomes salient because it is selected by the main verb as they are compatible in types.

Furthermore, in both of these cases, (32) also correctly predicts that the complement NP that the predicate (syntactically) subcategorizes for always qualifies as a *potential* topic. In other words, given a gapless topic-comment structure where the gapless topic is one of the nominal qualia for the complement NP in the comment, a corresponding "gapped" topic-comment structure, where the complement NP undergoes topicalization, is always available.

For example, in relation to (33), we still have the option of uttering *Banana$_i$, I enjoy eating the most _$_i$*. Also, in relation to (34), we also have *Pale ale$_i$, he enjoys the most _$_i$*. In the cases

where a formal quale is salient, the subtyping information serves to link the actual object argument with its sortal supertype, so that the predicate is simultaneously composing with the nominal-denoted object and selecting for the coerced type. The consequence is that one may alternate between a gapped and a gapless topic construction in such cases. Furthermore, an eventive argument projected from the telic quale of a nominal is itself a predicate over the nominal-denoted object. As this eventive argument is selected by the main predicate in the comment through a chain of predicates, the nominal is transitively linked back to the main predicate.

3.3. Restrictive relative clauses

The licensing condition for a topic-specific aboutness relation correctly rules out examples such as (4a) (repeated in the following):

(35) *Nei-ge   shudian,   ta   mai   shu.*
       DEM-CLF   bookstore,   he   bought   books
       'That bookstore, he bought books.'

The bookstore is semantically a locative adjunct of the main predicate, rather than one of the arguments belonging to the predicative relation. As a result, it fails to satisfy the licensing condition in (32). Importantly, though, we must bear in mind that nonarguments are excluded by the semantic requirement of updates that apply to topic structure and not by the general condition of the aboutness relation. The latter is not confined to arguments. Importantly, adjuncts such as those encoding the temporal or locative parameters of an event are also interpretationally relevant to the predicative relation and need to be included within the semantic representation of a predicate (Dowty 1979; Enç 1987; Verkuyl 1993; Kamp and Reyle 1993; Ernst 1994).

The fact that adjuncts also satisfy the general aboutness relation, I argue, lies at the core of the disparities between gapless topic and relative structures. Because relativization imposes upon its own semantic requirements, what gets excluded by the topic-specific update requirements may not be ruled out by relative-specific requirements. In what follows, I derive the full range of distributional possibilities of gapless relatives from a basic interpretive principle governing restrictive relative clauses.

By definition, a restrictive relative clause narrows down the reference of its head noun (McCawley 1981; Prince 1990; Comrie and Kuteva 2005).[9] In other words, its semantic function is to delimit a domain from which the referents of the head are to be found. For this function to be fulfilled, a necessary condition is that by restricting the domain we can reduce the number of referents, i.e., it must be the case that *some* referents of the head fall within the domain, while *other* alternative referents fall out of the domain.

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[9]   This function differs from that in nonrestrictive relative clauses, which serve the informing or reminding function for a pre-established discourse-salient entity (McCawley 1981; Potts 2002).

This can be illustrated with a regular restrictive relative clause that leaves behind a gap, such as (36):

(36) [*Wo   qu-guo*]   *de*   *shudian*
      I   go-PFV   REL   bookstore
      'Those bookstores that I have been to'

The meaning of this relative clause has to be that, out of a set of bookstores that is relevant for the context, there are some bookstores that I have been to, and there are also some other bookstores that I haven't been to. Accordingly, the domain containing places that I have been to provides a meaningful delimitation of bookstores, picking out a subset of them as the referents for the head noun.

This restrictiveness function in principle would allow any element that is represented in a proposition to be relativized, insofar as the proposition constitutes a delimiting domain for that element. Just as each proposition has a unique set of arguments, it also bears a unique location, temporal setting, etc.. As a result, the restrictiveness function readily predicts that the relativization of a semantic adjunct, such as (37), is possible:

(37) [*Ta   mai   shu*]   *de*   *nei-ge*   *shudian*
      he   buy   books   REL   DEM-CLF   bookstore
      'The bookstores that he buys books'

The head noun in (37) corresponds to the location of the proposition expressed by the relative clause. As such, the proposition provides a delimiting domain for the head noun, because it anchors the referents to only those bookstores that are the location of the propositional event of his buying books.

Furthermore, the restrictiveness function explains why the formal quale of a nominal resists relativization:

(38) *[*Wo   zui   xihuan   xiangjiao*]   *de*   *shuiguo*
      I   most   enjoy   banana   REL   fruit
      'the fruit that I enjoy (eating) banana most'

The predication within the relative clause requires the typing relation to be projected. Crucially, typing information relates to two sorts, so that the predication is over sortal entities, or kind-denoting entities. A crucial feature in reference to kinds is that they are abstracted away from individual reference to objects. A kind object generalizes over individual instantiations or situations under which any event featuring individual objects may occur (Krifka et al. 1995). This is inherently in opposition to the requirement for a relative clause to be restrictive: if the property cannot be sensitive to situations or individual objects, there is no way that it can pick out some objects against other alternative objects. In the case of (38), the relative proposition represents a predication of kind-denoting *banana*, so that it involves kind-denoting *fruit*. In this generic sense, the statement will not be able to distinguish one type of fruit from another.

One piece of supporting evidence is that the infelicity associated with kind-denoting entities is not limited to relativization. Indeed, in a gapless topic-comment structure, if the

comment expresses predication over kinds, then the topic must be kind-denoting, and cannot be specific (individualized) entities. This is evident from the contrast between (39a) and (39b):

(39) a. *Shuiguo,   wo   zui   xihuan   xiangjiao.*
          fruit,   I   most enjoy   banana
          '(Speaking of) fruit, I enjoy banana most.'

    b. **Nei-ge   shuiguo,   wo   zui   xihuan   xiangjiao.*
          DEM-CLF fruit,   I   most enjoy   banana
          '(Speaking of) that fruit, I enjoy banana most.'

In topicalization we do not have the inherent anti-kind property associated with relativization. Because updates may be applied to both kinds and individual objects, sentences such as (39a) are interpretable, since a comment that predicates over kinds corresponds to a kind-denoting topic. In spite of this, because predication over kinds always abstracts away from individual objects or situations, no such predication would constitute an update to any individualized entities. Hence the contrast in (39a-b) is exactly what my theory expects.

In comparison, non-generic readings are available when predicating over other qualia. For example, the constitutive quale of a nominal (which forms a part-whole relation with the nominal) may serve as a relative head, as (40) illustrates:

(40) [*Ta   zai   liutongchu   gongzuo*] *de   nei-ge   shudian*
       he   LOC   circulation.desk work   REL   DEM-CLF   bookstore
       'The bookstore that he works at the circulation desk'

Crucially, the entities that are in a part-whole relation may differ from individual to individual, and from situation to situation. Therefore, one may predicate over individual circulation desks, and this property in turn can be associated with individual bookstores. In this way, it makes sense to use a particular property of some individual circulation desks to pick out a subset of bookstores, as against other bookstores.

Similarly, a telic quale is also relativizable:

(41) [*Ta   dian-le   henduo baipi*] *de   nei-ci   hejiu*
       he   order-ASP   many   pale.ale REL DEM-CLF   drinking
       'That drinking (event) that/where he ordered quite a few pale ales'

This is because entities in a telic quale are also individualizable. As *pale ale* may correspond to particular drinking events, so that in principle drinking events can be distinguished along this dimension.

Having derived the range of gapless relative clauses from the aboutness licensing condition specific to relativization, we now already have the explanation for the question of why gapless topic and gapless relative structures partially overlap. In sum, because predication updates a property of individual objects, one is also able to use the same predication to evoke the property that distinguishes these objects from others. Consequently, predication over an argumental nominal's qualia, *modulo* the formal quale, satisfies both the topic-specific and the relative-specific aboutness condition. The formal quale, meanwhile, is ruled out in relativization as it necessarily denotes kind entities. Finally, nonargumental components in a

predicative relation cannot topicalize, because they are not the domains for updates to occur. As such, the dissimilarities between gapless topic and relative structures, as first noticed in Huang et al. (2009), are now characterized in terms of a set of natural classes. The exact overlapping pattern is schematized as in Figure 1:
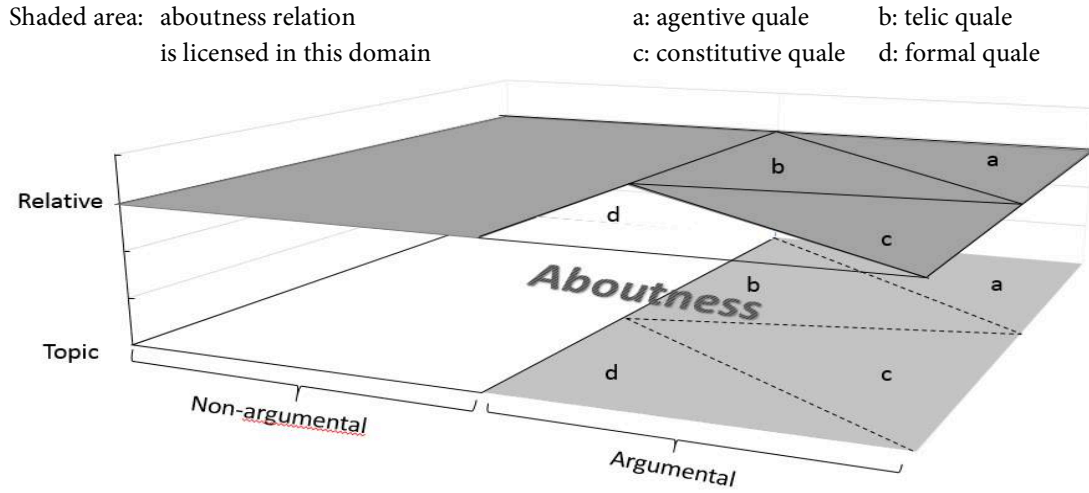

Figure 1. *Overlapping quala in the aboutness relation*

4. Implications

This paper argues that the aboutness relation is a general semantic condition. Specifically, a proposition is *about* any semantic object that is represented in the logical structure of that proposition's predicate. However, constructions impose their own semantic requirements. It is these requirements that perform the task of constraining the notion of aboutness. In a nutshell, the semantics of topicalization includes the update process carried out by a predicate. Only entities contained within the arguments of a predicate can be updated. The non-argumental interpretive components of a proposition, e.g. a temporal or locative adjunct, do not take part in the update and cannot license a topic structure. The semantics of relativization requires the head nouns of the relative to be individual entities. If a relative expresses generic information that ranges over kind-denoting entities, the requirement of relativization is necessarily violated.

Importantly, this theory draws attention to the fact that the predicate-complement data covered in Pustejovsky's generative lexicon theory exhibit a strikingly similar pattern to the data in gapless topicalization and relativization. By examining this similarity, I propose that the licensing conditions for the aboutness relation are related to the sublexical semantics of nominals. This treatment grounds the aboutness relation in well-established and independently motivated interpretational principles. In doing so, it not only avoids positing rather *ad hoc* constraints and achieves conceptual parsimony, but also obtains better empirical coverage by capturing both the similarities and the discrepancies between topicalization and relativization in a predictive manner.

Finally, this theory contributes to a rethinking of the notion of syntactic compositionality. Independently, there has been growing evidence that conventional compositionality needs to

be revised, allowing for what is called by Szabolcsi subcompositionality (Szabolcsi 2012, 2013), which involves semantic operations such as quantification or modification over sublexical parts. One consequence of my theory is that we also need to allow functional application to range over nonstructural sublexical materials, in which sense functional application ceases to be a simplex operation, but needs to involve the interaction of multiple relations (predicating, selecting, coercion, etc.) at the interface of the lexicon and syntax.

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