Revisiting presuppositional accounts of homogeneity

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Introduction: Early accounts of homogeneity effects with definite plurals treated homogeneity as a presupposition (Schwarzschild, 1996; Löbner, 2000; Gajewski, 2005), but this characterization has recently been challenged on the basis that homogeneity does not seem to exhibit the standard projection patterns commonly attributed to presuppositions (Spector, 2013; Križ, 2015). For example, homogeneity does not project from the antecedent of conditionals (1) and from polar questions (2). Furthermore, homogeneity violations do not behave like presupposition failures, as shown by the fact that you can't respond to them with *Wait a minute!* (3), a test which can be used to diagnose presuppositions.

(1) If Mary read the books, she passed the exam.
↛ Mary read all or none of the books.

(2) Did Mary read the books?
↛ Mary read either none or all of the books.

(3) A: Mary bought the jewels.
B: #Wait a minute! I didn't know she can't possibly have bought just some of them.

The main goal of this talk is to defend the original presuppositional approach to homogeneity. I show that homogeneity is sensitive to constraints on presupposition accommodation and argue that the differences between homogeneity and other presuppositions stem from the fact that homogeneity gives rise to non-connected propositions (in the sense of Engeuhard and Chemla (2021)). The proposal builds on an idea from Fox (2018) that homogeneity is a presupposition that is implausible to accommodate globally.

Homogeneity and connectedness: Engeuhard and Chemla propose that there is a general preference for connected propositions that can be active in disambiguation. We generalize their notion of connectedness to trivalent propositions in (4a), where for a trivalent proposition to be connected, both the assertive component (i) and the presupposition (ii) must be connected. Connectedness is defined relative to an ordering of worlds, which can be thought of as an ordering source consisting of the set of alternatives for a proposition (to be discussed in more detail in the paper). I propose that connectedness constrains local accommodation, according to the principle in (4b). Furthermore, all else being equal, global accommodation is preferred to local accommodation, and if insertion of the A operator is necessary to prevent non-connectedness, it is preferred to occur as high as possible.

(4) a. **Connectedness for trivalent propositions**: A trivalent proposition p is disconnected iff

i. $\exists w_1, w_2, w_3$ s.t. $w_1 \leq w_2 \leq w_3 \land p(w_1) = 1 \land p(w_2) = 0 \land p(w_3) = 1$ **or**

ii. $\exists w_1, w_2, w_3$ s.t. $w_1 \leq w_2 \leq w_3 \land p(w_1) = 1/0 \land p(w_2) = \# \land p(w_3) = 1/0$

b. **Connectedness and local accomodation:** Among the parses of a sentence with or without the A operator, those that result in in non-connected meanings are dispreferred.

Assuming that homogeneity is a presupposition, we can now apply the connectedness principle to the problem of homogeneity projection. Beginning with the basic positive case, we see that Parse 2 with no local accommodation gives rise to a non-connected proposition: Assuming there are only two books 1 and 2, the worlds where p=# (where Mary read one of 1 and 2) are ordered between worlds where p=0 (where Mary read neither) and worlds where p=1 (where Mary read 1 and 2 both) (see Figure 1). Therefore, only the parse with local accommodation in (6a) is licensed. Now, if local accommodation at the matrix level is always required in the basic positive case, this would explain the fact that the *Wait a minute!* response in (3b) is not licensed: the parse in 1 has no presupposition.

(5)   Mary read the books.

    a. Parse 1: A(Mary read the books)   b. Parse 2: Mary read the books.
       1 iff Mary read all of the books.   1 iff Mary read all of the books.
       0 iff Mary didn't read all of the books.   0 iff Mary read none of the books.
       # never   # iff Mary read only some of the books.

Turning to the case of conditionals, the only parse that results in a connected meaning is the one in (6b), where A is inserted in the antecedent of the conditional. The parse with no accommodation is disconnected for the same reason that (5b) is disconnected. The parse with accommodation at the global level in (6a) is also disconnected: the resulting proposition p=0 in a world where Mary read only some of the books and passed the exam which is ordered between a minimally different world where Mary read all of the books and passed the exam (p=1) and a world where Mary read none of the books and passed the exam (p=1) (Figure 2). We therefore correctly predict that homogeneity can't project from the antecedent of conditionals.

(6)   If Mary read the books, she passed the exam.

    a. Parse 1: A(If Mary read the books she passed the exam)
       1 iff Mary read either none or all of the books and if she read all of them she passed the exam.

    b. Parse 2: If A(Mary read the books), she passed the exam.
       1 iff Mary passed the exam in all the worlds where she read all of the books.

Finally, consider a case where homogeneity does seem to project from an embedded environment: the scope of non-monotonic quantifiers. Here, we show that both the parses in (7a) and (7b) give rise to a connected meaning: for (7a) there is no world that is ordered between the worlds where p=1 (in gray) (Figure 3). Therefore, the parse where A is inserted at the matrix level in (7a) is preferred, predicting the correct truth-conditions for (7). The projection facts can therefore be accounted for without treating homogeneity as a suis generis phenomenon distinct from presuppositions. The differences in projection follow from the fact that the homogeneity presupposition is disconnected while standard presuppositions, which do not involve the type of disjunctive meaning that homogeneity imposes, are generally connected.

(7)   Exactly one student read the books.

    a. Parse 1: A(Exactly one student read the books.)
       1 iff Exactly one student read all of the books and all the other students read none of them.

    b. Parse 2: Exactly one student 1 A(t_1 read the books).
       1 iff Exactly one student read all of the books.

Constraints on presupposition accommodation: Presupposition accommodation is sensitive to the following constraint: The QUD can't be answered with an accommodated presupposition (Heim 2015 lecture notes). This provides us with a diagnostic for presupposition that is not dependent on projection: if homogeneity is in fact a presupposition, it should be sensitive to Heim's constraint. For the basic positive case, this prediction is borne out, as shown in (8). Given a common ground where we know that Mary read at least some of the blue books, once the homogeneity presupposition is accommodated, we get to a common ground where Mary read all of the blue books and therefore all of the information in (8a) is provided by the accommodated presupposition, violating Heim's constraint.

(8)   **Context:** Mary and Bill were together and saw Jane read one of the blue books. Mary left, but Bill stayed and saw Jane finish all the blue books.
    a. B to M: #Jane read the blue books.
    b. B to M: Jane read all the blue books.

A version of Heim's constraint is also at play when the definite plural is in the antecedent of a conditional and in polar questions. In (9a) and (9b), the additional information provided in the antecedent and the additional information requested in the polar question are both contributed solely by the accommodated homogeneity presupposition (since it is known that Mary read at least some of the books). Local accommodation with standard presupposition triggers is also sensitive to this version of Heim's constraint (10), thus strengthening the parallel between homogeneity and presuppositions. While local accommodation is licensed in (10b), it is not in (10a), where it is known that Mary doesn't smoke: here, 'If she quit smoking she must be very brave' is and 'If she used to smoke, she must be very brave' contribute the same information and therefore the sentence in (10a) is predicted to be odd due to the same constraint on presupposition accommodation.

(9)   a. I know that Mary read at least some of the blue books, but # if she read the blue books, she will pass the exam.

       b. I know that Mary read at least some of the blue books, but # did she read the blue books?

(10)   a. I know that Mary doesn't smoke, but # if she quit smoking, she must be very brave.

       b. I don't know if Mary used to smoke, but if she quit smoking, she must be very brave.

Summary: We have argued that homogeneity is a presupposition and that once we appropriately constrain the distribution of the A operator, we can account for the differences in projection between homogeneity and standard presuppositions. More broadly, we conclude that projection can be misleading as a diagnostic for presuppositions and that constraints on accommodation such as Heim's constraint provide us with a more reliable method of identifying triggers as presuppositions.
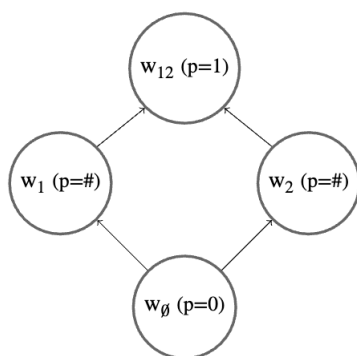

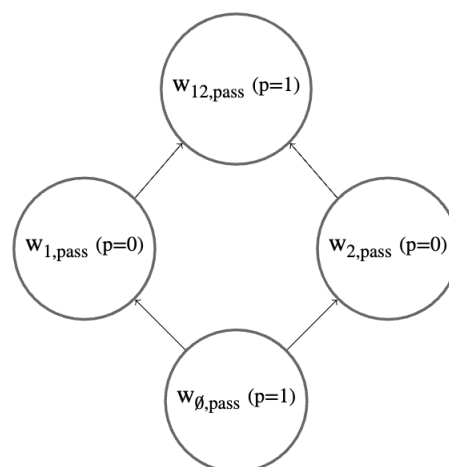Figure 1: p= Mary read the books. (subscript mn on w indicates that Mary read books m and n in that world)

Figure 2: p= If A(Mary read the books), she passed. (subscript mn,pass on w indicates that Mary read books m and n and passed in w.)

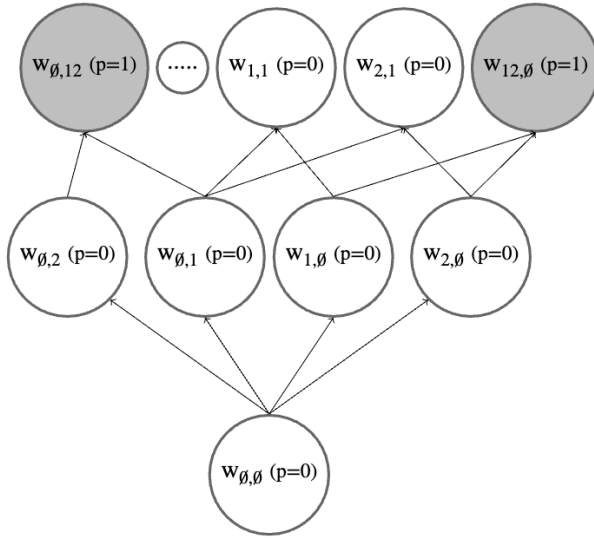Figure 3: p= A(Exactly one student read the books)
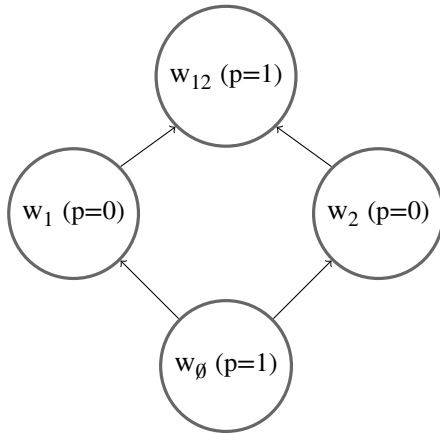(subscript m,n indicates that student a read book m and
student b read book n.)

Figure 1: p= Mary read all or none of the books.
(subscript mn on w indicates that Mary read books
m and n in that world)

References

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Križ, M. (2015). *Aspects of homogeneity in the semantics of natural language* (Unpublished doctoral dissertation). University of Vienna.

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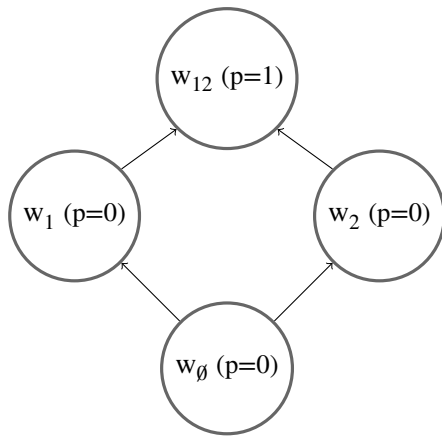Schwarzschild, R. (1996). *Pluralities* (Vol. 61). Springer Science & Business Media.
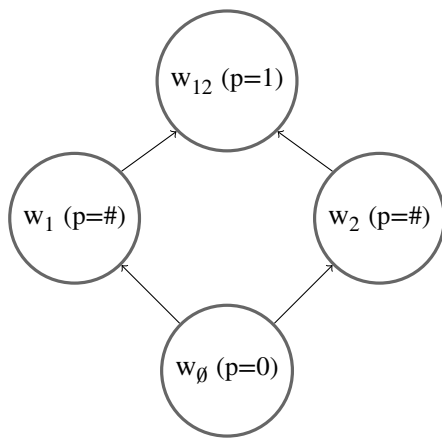
Figure 2: p= A(Mary read the books)

Figure 3: p= Mary read the books

Spector, B. (2013). *Homogeneity and plurals: From the strongest meaning hypothesis to su-pervaluations.* (Presented at Sinn und Bedeutung 18)
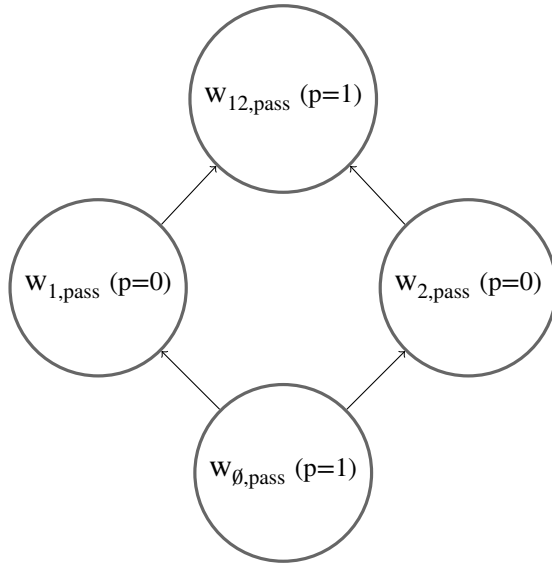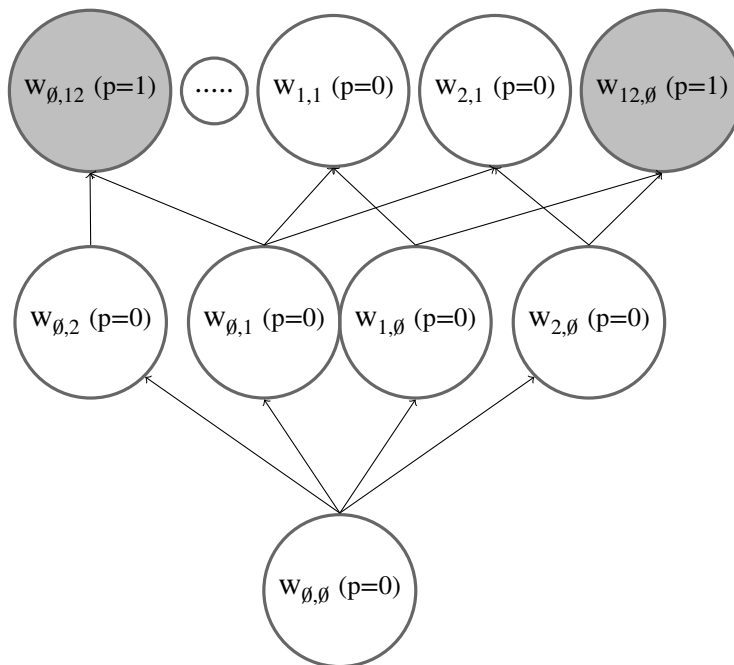
Figure 4: p= If A(Mary read the books), she passed.

Figure 5: p= A(Exactly one student read the books) (subscript m,n indicates that student a read book m and student b read book n.)
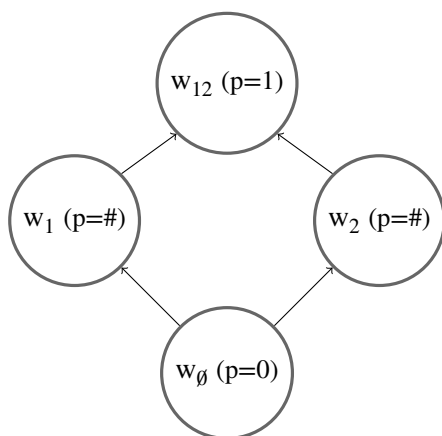
Figure 6: p= Mary read the books. (subscript mn on w indicates that Mary read books m and n in that world)