The dynamics of negative concord

NPIs appear (roughly) in downward entailing environments. Why? Perhaps because in these environments, widening the domain strengthens the utterance ([13]); perhaps because exhaustifying alternatives doesn’t result in contradiction ([5]); perhaps because one scopal ordering entails the other ([1]). All these explanations turn out to pick out (roughly) the same contexts.

Negative concord items appear in a smaller set of contexts: roughly, those that are anti-additive ([18]) or anti-veridical ([8]), as in (1). Why? Here, semantic explanations are scarcer (though see [5]). But here’s one semantic property that these environments have: they prevent discourse referents from being introduced, as seen in (2).

   ‘I didn’t see anybody.’    ‘I went there without anybody.’ (Italian)

(2) a. I didn’t see a student in the room. ?? He was studying hard.
   b. I went to the party without a date. ?? He was wearing a tux.

Here, I propose that this is, in fact, the explanatory property of NC items. NC items are indefinites that flag the fact (in their lexical semantics) that they will fail to introduce a discourse referent. After spelling this out using dynamic semantics, I show that it has number of advantages:

1. It correctly predicts that NC items must appear under a local anti-veridical operator.
2. If the presupposition that the DR set is empty is made at-issue, we predict negative uses of NC items: exactly what’s attested in fragment answers and non-strict concord languages.
3. It perfectly unites negative concord with recent analyses of other concord phenomena.

Concord

Concord describes a phenomenon in which a single logical meaning is expressed syntactically on multiple lexical items. Negative concord can be seen as instance of a larger pattern. In ‘distributive concord,’ multiple words with distributive marking may appear innocently in the same sentence, with a single distributive meaning, as in (3). Uses of definites observed by [11] can be seen as showing ‘definite concord’; in (4), there is a unique rabbit-hat pair.

(3) BOY EACH (distr) CHOOSE ONE (distr) GIRL.          ‘The boys each chose one girl.’ (ASL)
(4) the rabbit in the hat [OK in context with multiple hats but only one containing a rabbit]

Recent analyses of distributive and definite concord converge on a semantic explanation. These analyses can be approximated by paraphrase. A distributive numeral is equivalent to a plain numeral, but there is an added condition, equivalent to a follow-up sentence, that the DP refers to a plurality of individuals ([12, 14]). The definite article is equivalent to an indefinite article, but there is an added condition, equivalent to a follow-up sentence, that the DP refers to a unique individual ([3]). In (5) and (6), the underlined sentence is presupposed—it must hold in all output worlds.

(5) Each boy chose a girl. There are several such girls. [Pseudo-LF for (3)]
(6) A rabbit in a hat (there is one such rabbit, one such hat) ate a carrot.  [Pseudo-LF for (4)]

I propose an exactly parallel analysis. An NC item is equivalent to an existential, but there is an added condition, equivalent to a follow-up sentence, that the extension of the DP is empty.

(7) I didn’t see a person. There are no such people.  [Pseudo-LF for (1a)]
Analysis  Split scope: Following [6, 4], I allow QR’ed DPs to leave a trace of type \(\langle et, t \rangle\) (call this type \(Q\)), yielding a meaning like the one in (8). NC items are assigned type \(\langle Qt, t \rangle\).

\[
(8) \quad [8_{\langle et, t \rangle}] [I[6_e \not\{t_s [7_e \cup t_0 \cup see(t_1)]\}]] = \lambda Q_{\langle et, t \rangle} [\neg Q(\lambda x [see(x)(me)])]
\]

Dynamics: Following [10], states are tuples containing a world and an assignment function; dynamic updates are formulated as taking a set of states to a set of states. Assignment functions are assumed to start out with only undefined values (\#). The global test ‘\(0_x\)’ is a presupposition that checks that \(x\) is undefined in all possible assignments. Negative concord nobody is defined in (13).

\[
(9) \quad \varphi; \psi := \lambda S.\psi(\varphi(S))
\]

\[
(10) \quad [u] := \lambda S.\{t | \exists s \in S[\exists d[t = s^{u \leftarrow d}]]\}
\]

\[
(11) \quad P_{dyn}(u_1, ..., u_n) := \lambda S.\{t | t \in S \land P_{stat}(t_g(u_1), ..., t_g(u_n))(t_u)\}
\]

\[
(12) \quad \not = := \lambda \varphi \lambda S.\{t | t \in S \land \varphi(\{t\}) = \emptyset\}
\]

\[
(13) \quad \text{nobody}_{\xi_{NC}} := \lambda c.\lambda P(x); P(x); 0_x
\]

\[
(14) \quad [I \text{ didn’t see nobody}_{\xi_{NC}}] = \neg([x]; see(x)(me)); 0_x
\]

Predictions  Locality: In order to generate a non-contradictory LF, split scope is required (as above), to separate the presupposition from dref introduction. Because scope-taking is a clause-bound operation, we predict (correctly) that clause boundaries block NC item licensing ([9]).

Licensors: If a dref \(x\) is introduced under the quantifier few, the resulting proposition returns some states in which \(x\) is not defined, but others in which it is. \(0_x\), as a presupposition, is not satisfied. The analysis thus correctly predicts that few does not license NC items.

Many licensors of NC items are anti-additive (i.e., functions that satisfy \(f(x \lor y) = f(x) \land f(y)\)), but [7] observes that the restrictor of every is an anti-additive environment that nevertheless does not license NC items. The present analysis captures this fact; [16, 15, 2] show that the restrictor of every may indeed introduce discourse referents, as in (15).

\[
(15) \quad \text{All of my friends who have a plant take good care of it. They each water it every day.}
\]

Negative uses  A variety of linguistic strategies allow non-at-issue meaning to become at-issue. This shift can be written as the rule in (16): ‘return the maximal context that doesn’t yield failure.’ Applying this rule to the meaning of NC items turns out to result in a negative meaning.

\[
(16) \quad ACCOMODATE(\psi) = \lambda S.\{t : t \in S \land \psi(\{t\}) \neq \#\}
\]

\[
(17) \quad [\text{nobody}_{\xi_{NC}}](c) = ACCOMODATE([\text{nobody}_{\xi_{NC}}](c))
\]

‘Return the set of states \(t\) such that, if I had updated \(\{t\}\) with somebody Xed, then checked for individuals witnessing that proposition, I wouldn’t have found any.’

Such negative uses are attested in fragment answers and in pre-verbal positions in non-strict concord languages, as in (18). To account for the restricted distribution of these uses, we can adopt the principle of ‘last-resort,’ previously proposed as a way to rescue occurrences of NC items that are too high to be licensed by sentential negation. For [17], this last-resort option is a silent negative operator. I propose a different last-resort option: accommodation. Unmodified, (18) would result in a presupposition failure. ACCOMODATE returns the maximal context that doesn’t result in failure. For (18), this is the context containing only worlds in which nobody called.

\[
(18) \quad \text{Nessuno ha telefonato.} \quad \text{‘Nobody called.’ (Italian)}
\]
References


