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).

(1) a. Non ho visto nessuno.
not have seen nobody
'I didn't see anybody.'

b. Ci sono andato sensa nessuno.
there have gone without nobody
'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) $[\![8_{\langle et,t\rangle}\ [\text{I}\ [6_e\ [\text{not}\ [t_8\ [7_e\ [t_6\ \text{see}\ t_7]]]]]]]\!] \quad = \quad \lambda Q_{\langle et,t\rangle}[\neg Q(\lambda x[\text{see}(x)(\text{me})])]$

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 '$\mathbf{0}_x$' is a presupposition that checks that x is undefined in all possible assignments. Negative concord *nobody* is defined in (13).

(9) $\varphi\,;\,\psi \quad := \quad \lambda S.\psi(\varphi(S))$

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

(11) $P_{\text{dyn}}(u_1, ..., u_n) \quad := \quad \lambda S.\{t \mid t \in S \wedge P_{\text{stat}}(t_g(u_1), ..., t_g(u_n))(t_w)\}$

(12) $[\![\text{not}]\!] \quad = \quad \neg \quad := \quad \lambda\varphi\lambda S.\{t \mid t \in S \wedge \varphi(\{t\}) = \emptyset\}$

(13) $[\![\text{nobody}^x_{\text{NC}}]\!] \quad = \quad \lambda c.c(\lambda P.[x]; P(x)); \mathbf{0}_x$

(14) $[\![\text{I didn't see nobody}^x_{\text{NC}}]\!] \quad = \quad \neg([x]; \text{see}(x)(\text{me})); \mathbf{0}_x$

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. $\mathbf{0}_x$, 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 $f(x \vee y) = f(x) \wedge f(y)$), 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) All of my friends who have a plant take good care of <u>it</u>. They each water <u>it</u> 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) $\text{ACCOMODATE}(\psi) = \lambda S.\{t : t \in S \wedge \psi(\{t\}) \neq \#\}$

(17) $[\![\text{nobody}_\neg]\!](c) = \text{ACCOMODATE}([\![\text{nobody}_{\text{NC}}]\!](c))$
'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 to 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: accomodation. 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) <u>Nessuno</u> ha telefonato. 'Nobody called.' (Italian)

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