Overview: One of the most puzzling phenomena at the syntax-semantics interface are so-called *intervention effects*, as first detailed by Beck (1996, 2006). Beck identified a relatively cross-linguistically robust set of operators – *interveners* – which are transparent with respect to *overt wh*-movement, but do not tolerate *in-situ wh*-expressions within their scope. Beck (2006) outlined an influential theory of intervention effects based on associaton with focus (see also Kotek 2014, 2017 for an elaboration), but a common criticism levelled against such accounts is that they fail to capture the intervener-status of operators such as negation in a non-stipulative way – see Mayr (2014) for discussion. (1) (Beck 1996, 1a) illustrates intervention by negation in a partial movement configuration, and (2) illustrated intervention by a negative quantifier in a multiple question.

(1) * *Was glaubt Hans nicht wer da war?*
What believes Hans not who.NOM there is?
"Who does Hans believe isn't there?"

(2) * *Wann hat niemand wen eingeladen?*
When has nobody who.ACC invited?
"When did nobody invite who?"

Many of the same operators that give rise to intervention effects, such as negative expressions, also give rise to *weak island effects* with certain *wh*-expressions – see, e.g., Rullmann (1995), Fox & Hackl (2007), Abrusán (2014). But there are two obstacles to a unification: (i) *wh*-expressions ranging over individuals are sensitive to interveners, but not weak islands (ii) weak islands allow for *modal obviation* (Fox & Hackl 2007), as in *how fast is one not allowed to drive?*, but is not observed with intervention; (3) is not noticeably better than (1).

(3) * *Was darf Hans nicht glauben wer da war?*
What allowed Hans not believe who.NOM there is?
"Who is Hans not allowed to believe who isn't there?"

We propose a a unified account which overcomes these obstacles, with two essential ingredients (i) scope-marking constructions and *wh-in-situ* involve *cyclic scope-taking* (Dayal 1996, Charlow 2017), and (ii) question nuclei undergo obligatory strengthening via exh (Nicolae 2013). Because exh is not sensitive to the nature of the *wh*-expression, but just to the question nucleus, it can predict intervention with individual-type *wh*-expressions as long as they trigger cyclic movement leaving behind a higher-type trace. Modal obviation is not predicted unless movement can skip both negation and a modal in a single cycle.

Exhaustification in questions: Following Nicolae (2013), question nuclei undergo an obligatory strengthening operation, which we identity with the grammatical exhaustification operator exh, as defined in (4); it takes a set of alternatives C, a prejacent p, asserts p and negates p's logically non-weaker alternatives. Also following Nicolae, we assume that exh associates with the trace of a moved *wh*-expression. The LF we assume for a basic constituent question is given in (5). Since exh associates with the *wh*-trace, the set of alternatives C in (5) is $\{\, p \mid \exists x[p = \lambda w\,.\,\mathrm{m}\ \mathrm{praise}_w\ x] \,\}$. exh therefore returns the (strengthened) proposition that *Mary praised x and nobody else.* The resulting question meaning is given in (6).

(4) $\mathrm{exh}\, C\, p\, w \coloneqq p\, w \wedge \forall p' \in C[p \not\subseteq p' \rightarrow \neg\, p'\, w]$ $\quad \langle \mathrm{stt}, \langle \mathrm{st}, \mathrm{st}\rangle\rangle$

(5) λp [which students$_{@}$] [λx [t_p [C_Q [exh [Mary praise t_x^F]]]]]

(6) $\lambda p, . \exists x \left[\begin{array}{c} \mathsf{m\ praise}_w\ x \\ \mathsf{students}_@\ x \wedge p = \lambda w\ .\ \wedge \forall p' \in \{\ q \mid \exists x'[q = \lambda w'\ .\ \mathsf{m\ praise}_{w'}\ x']\ \} \\ [p \not\subseteq p' \rightarrow \neg\ p'\ w] \end{array}\right]$

Cyclic scope: We implement Dayal's (1996) account of scope-marking by treating *was* in German as the spellout of Cable's (2010) Q-morpheme, which we treat as a type-flexible existential quantifier as in (7). The LF we posit for scope-marking in German is given in (8b). Note that here, exh associated with a *propositional* trace.

(7) $\mathrm{Q} \coloneqq \lambda P\ .\ \lambda Q\ .\ \exists r[P\ r \wedge Q\ r]$

(8) a. *Was* did Hans believe which students Mary praised?

b. λq [Q [which students Mary praised]] [λp [C_q [exh [Hans believe t_p^F]]]]

The computed meaning for (8b) – given in (9a) – is the same as *which students did Hans believe that Mary praised?*, modulo the contribution of exh. It returns the set of propositions of the form *Hans believes that Mary praised students x*, where *Mary praised students x* is the only thing that Hans believes. Of course, this is too strong, so we assume that global, contextual domain restriction constrains the set of alternatives to those of the form *Mary praised x students*.

(9) a. $\lambda q\ .\ \exists\ r \in P[q = \lambda w\ .\ \mathsf{h\ believe}_w\ r \wedge \forall q' \in Q[(\lambda w\ .\ \mathsf{h\ believe}_w\ r) \not\subseteq q' \rightarrow \neg\ q'\ w]]$

b. $P = \{\ p \mid \exists\ x[\mathsf{students}_@\ x \wedge p = \lambda w\ .\ \mathsf{m\ praised}_w\ x]\ \}$

c. $Q = \{\ t \mid \exists u[t = \lambda w\ .\ \mathsf{h\ believe}_w\ u]\ \}$

One overtly spelled-out Q-morpheme (*was*) can be construed with a second intermediate one. We assume furthermore that with *wh-in-situ* a silent Q-morpheme with an Q-complementizer occurs at every phrasal level above the *wh-in-situ* and associates with the *wh-in-situ*.

Intervention: We only address intervention with scope marking in (10), but this case generalizes to *wh-in-situ*.

(10) a. *Was* didn't Hans believe which students Mary praised?

b. λq [Q [which students Mary praised]] [λp [C_q [① exh [Hans not believe t_p^F]]]]

Intervention follows as a weak island phenomenon because (11) presupposes a maximal p that Hans doesn't believe, but this doesn't exist except in pathological cases. In line with Fox & Hackl (2007), contextual domain restriction can't rescue this pathology.

(11) ① $= \lambda w\ .\ \neg\ \mathsf{h\ believe}_w\ p \wedge \forall p' \in \{\ q \mid q = \lambda w'\ .\ \neg\ \mathsf{h\ believe}_{w'}\ q\ \}\ [p \not\subseteq p' \rightarrow \neg\ p'\ w]$

Further Evidence: Our approach predict modal obviation to reemerge with intervention when cyclic movement skips negation and modal in one step. As predicted, 12, where *kann nicht glauben* is an idiom, is more acceptable than 3.

(12) *Was kann Hans nicht glauben wer da war?*
What allowed Hans not believe who.nom there is?

"Who can Hans not believe who isn't there?"