On "noch (ein)mal so"

German *noch (ein)mal* (lit. "still once") is often used as repetitive *again* (e.g., von Stechow 1996), indicating that a previous activity is repeated. When combined with the degree pronoun *so*, it is additive, getting either a reading as 'twice as' or as 'also like that'.

(1) (The mean head-body length of a harvest mouse is 6cm)
Der Schwanz ist **noch mal so lang**.
the tail   is still   once so long
"The tail is that long, too"

(2) (When we bought our turtle, it weighed 16 gram)
Jetzt ist sie **noch mal so schwer**.
now is she still   once so heavy
"Now it is twice (lit. still once) as heavy"

The main proposal of this talk is that such examples, those like (2) in particular, require a differential account, based on Thomas' (2018) analysis of stressed additive 'noch'.

STANDARD ACCOUNTS OF 'NOCH': (3) is a variant of Beck's (2020) proposal for the core meaning of *noch* (see also e.g. König 1977, Löbner1989, Ippolito 2007, Beck 2016).

(3) $[[\text{noch / still}]]^{S,x*} = \lambda x.\lambda P \in D_{\langle x,t\rangle}: \underline{x* \prec_S x \ \& \ P(x*)]}. \ P(x)$
"true if entity x has property P; triggers the presupposition that a salient entity x* is ranked lower on a salient scale S and also has property P"

There are various different uses of *noch*. The 'basic' reading is usually assumed to be temporal (where entities x, x* ranked on a scale are times and P is a property of times), see (4). For us, the additive reading is important (where — according to e.g. Eckardt 2007, Umbach 2012 — the entities are focus alternatives, ranked by order of mention), see (5).

(4) Paul ist noch krank   Assertion: Paul is sick
"Paul is still sick"   Presupp.: Paul was previously sick

(5) Dann sang NOCH ein Kind   A: A child sang
'Then, another child sang'   P: A recent utterance entails that a child sang

For the meaning as repetitive 'again', see e.g. (6) (Beck 2005, Patel-Grosz & Beck 2014).

(6) $[[\text{noch (ein)mal}]] = \lambda P.\lambda e: \exists e'[e' < e \ \& \ P(e')].P(e)$
"Such an event has happened before."

Neither (3) nor (6) can account for (2) because 'noch'/'noch (ein)mal' are assumed to have no truth-conditional effect. (2) makes a claim about the **difference** between the former weight and the current weight, therefore a differential account (such as that of Thomas 2018) is needed.

THOMAS (2018): Particles like 'noch' always involve a comparative component, since in many languages, additivity and comparison are expressed the same (cf. English 'more'). Additive examples like (5) are similar to differential comparative examples like *2cm taller*: (i) the scale is a scale of amounts: 'ein' is a numeral rather than an indefinite article (ii) if 2 children sang previously, (5) expresses that one child is added so that the full amount of singers is 2+1 = 3.

(5) (2 children sang)
Dann sang NOCH ein Kind
then   sang still   one child
'Then, another child sang'

The same is needed for (1) and (2): a factor phrase ('einmal so') is added to the salient degree:
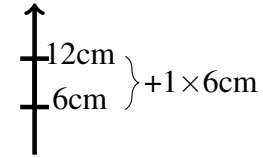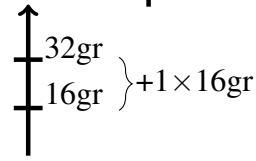
(1)   (Their mean head-body length is 6cm)
        der Schwanz ist **nochmal so lang**.
        the tail   is still.once so long
        "the tail is that long, too"

$$\begin{array}{l} \text{12cm} \\ \text{6cm} \end{array} \Big\} +1\times 6\text{cm}$$

(2)   (The turtle previously weighed 16 gram)
        Jetzt ist sie **nochmal so schwer**.
        now is she still.once so heavy
        "Now it is twice (lit. still once) as heavy"

$$\begin{array}{l} \text{32gr} \\ \text{16gr} \end{array} \Big\} +1\times 16\text{gr}$$

(7) is a lexical entry for *noch* in the spirit of Thomas (2018), the first argument is a differential degree (x^* is a salient individual, d^* a salient degree). The derivation of (5) is shown below:

(7) $[[\text{NOCH}]]^{S,x^*,d^*} = \lambda d_{diff}.\lambda G \in D_{\langle d,\langle e,t\rangle\rangle}.\lambda x: \underline{G(d^*)(x^*)}.G(d^*+d_{diff})(x^*\oplus x)$

(8) $[[2\ t_2\text{-many child sang}]]$
        $= \lambda d.\lambda x.|x|=d\ \&\ x \text{ is a child} \ \& \ x \text{ sang}$

(9) $[[\exists\ \text{NOCH one }2\ t_2 \text{ many child sang}]]^{S}$
        $= 1$ iff $\exists x[|x^*\oplus x|=d^*+1\ \&\ x^*\oplus x$ is a child $\&\ x^*\oplus x$ sang],
        defined iff $|x^*|=d^*\ \&\ x^*$ is a child $\&$ x^* sang
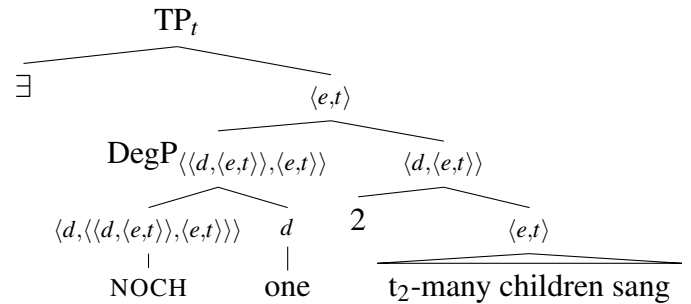
ANALYSIS OF (1) AND (2): The same lexical entry for *noch* in (7) is used. In (1), x^* is the harvest mouse's body, d^* is 6cm, *so* is an anaphoric degree pronoun (Beck 2012) also referring to 6cm. *Einmal* is of type $\langle d,d\rangle$, it takes a degree (so_9) and multiplies it by one (Gobeski 2019).

(10) a. $[[1\times so_9]]^{S} = 1\times g(9) = 1\times 6\text{cm} = 6\text{cm}$
      b. $[[\text{long}]] = \lambda d.\lambda x.\ \text{LENGTH}(x) \geq d$
      c. $[[\text{NOCH } 1\times so_9 \text{ long}]]^{S}$
            $= \lambda x: \text{LENGTH}(x^*)\geq d^*.$
            $\text{LENGTH}(x^*\oplus x) \geq (d^*+6\text{cm})$
      d. $[[\text{the tail is NOCH } 1\times so_9 \text{ long}]]^{S}$
            $= 1$ iff $\text{LENGTH}(x^*\oplus\text{the-tail}) \geq d^*+6\text{cm}$
            defined iff: $\text{LENGTH}(x^*)\geq d^*$
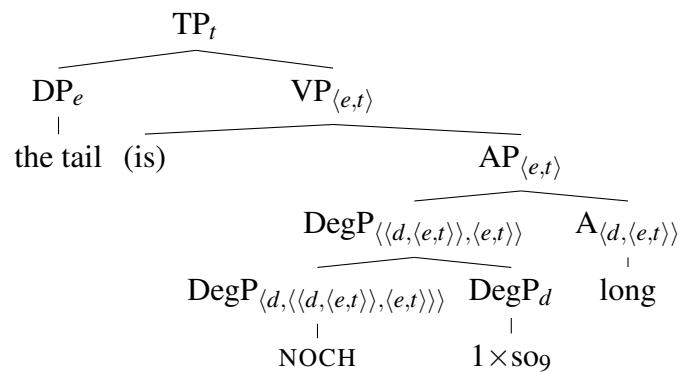
Example (2) is exactly the same, with one difference: x^*, the salient individual, is the same turtle. For that reason, $x^*\oplus\text{the-turtle} = \text{the-turtle}$ (e.g., Nouwen 2016: $a\oplus a = a$):

(11) a. $[[1\times so_7]]^{S} = 1\times g(7) = 1\times 16\text{gr} = 16\text{gr}$
      b. $[[\text{schwer}]] = \lambda d.\lambda x.\ \text{WEIGHT}(x) \geq d$
      c. $[[\text{NOCH } 1\times so_7 \text{ schwer}]]^{S} = \lambda x: \underline{\text{WEIGHT}(x^*) \geq d^*}.\ \text{WEIGHT}(x^*\oplus x) \geq d^*+16\text{gr}$
      d. $[[\text{Die Schildkröte ist NOCH } 1\times so_7 \text{ schwer}]]^{S} = 1$ iff $\text{WEIGHT}(x^*\oplus\text{the-turtle}) \geq d^*+16\text{gr}$
            $= \text{WEIGHT}(\text{the-turtle}) \geq d^*+16\text{gr}$, defined iff: $\text{WEIGHT}(x^*) \geq d^*$

SUMMARY: To sum up, this talk presents further support for Thomas (2018)'s differential view of additive readings of *noch*, by looking at additive degree-based readings of *noch*.

Selected references: Beck, S. 2005. There and Back Again: A Semantic Analysis. JoS 22(1). **Beck**, S. 2020. Readings of scalar particles: noch/still. L & P 43. **Gobeski**, A. 2019. Factor Phrases: the Semantics of Multiplicative Modification of Events, Degrees, and Nominals, and the Grammar of Arithmetic. Ph.D. thesis, MSU. **Greenberg**, Y. 2010. Additivity in the domain of eventualities (or: Oliver Twist's more). In M. Prinzhorn et al. (eds.), Proceedings of SuB 14. **Thomas**, G. 2018. Underspecification in Degree Operators. JoS 35(1). **Umbach**, C. 2012. Strategies of additivity: German additive noch compared to auch. Lingua 122(15).