The Too-many-solutions problem illustrated with West Germanic Gemination

West Germanic had a process whereby the first consonant of an intervocalic cluster was lengthened if it followed a short stressed vowel, and preceded one of the consonants /j, w, l, r/ which in its turn was followed by a vowel. Examples are given in (1). There were two systematic exceptions to lengthening: a)) /r/ was never lengthened, and b) a voiced consonant was not lengthened if it was followed by /l/ or /r/. This is illustrated in (2).

The classical analysis of this phenomenon, proposed in work by Murray and Vennemann (full references at the talk), proposes that gemination is the consequence of two interacting principles. On the one hand, the *Stressed Syllable Law* requires syllabification of the first consonant in the coda of the stressed syllable. This, however, yields structures that are bad from the point of view of the *Contact Law*. Gemination therefore applies, repairing the undesirable representations. Schematically, what happened was the following: underlying /satjan/ was syllabified as [sat.jan]; then gemination created [sat.tjan].

This is all very well as long as this chain of events is given a purely diachronic interpretation. This is problematic, however, as pointed out in Bermúdez-Otero (1999). He shows, quite convincingly, that at some stage synchronic alternations must have existed. Stems ending in the sequence VC had two allomorphs; if the stem-final consonant was followed by a vowel-initial suffix, then there was no gemination. If, on the other hand, a consonant-initial suffix followed, gemination did apply. This happened at a single stage in time. Traces of this alternation can be found in later dialects of West Germanic. Examples are given in (3). To explain the alternation Bermúdez-Otero relies on lexical phonology: constraints apply at multiple levels and at each level rankings can differ. From the point of view of classical OT this solution is problematic; there are no levels, so there is no multiple constraint evaluation.

In this talk I propose an analysis that does not rely on levels at all. My analysis proposes that West Germanic Gemination is the consequence of *Prosodic Licensing* (Zoll (1996, 1997, 1998). There are two important families I need for my analysis. Firstly, the head of an onset can only license a dependent if it (the onset head) is licensed by stress. In Zoll's version of licensing this means that it must be located in a stressed position, or associated to a segment that is located in a stressed position. Secondly, a coda consonant must be licensed by an onset. This constraint is well known as the coda constraint. This constraint only allows a coda consonant if it is also linked to an onset. If both constraints are high ranked, gemination of the first consonant in a cluster is the result. This idea is schematically illustrated in (4).

Although this approach can explain synchronic alternations without multiple evaluation it does create a fundamental problem. This is the problem of the *Too-many-solutions*. If it is true that complex onsets must be licensed by stress, then why not move the stress to a branching onset? Surely this never happens. This means that my analysis creates an undesirable typology; it incorrectly predicts that stress shift can act as a repair mechanism in order to create a representation where a complex onset is licensed.

To solve this problem I return to the original representation of stress. It consists not only of trees, or gridmarks, but it has them both (Liberman and Prince 1977). I also follow the classical theory in the following respect: only nuclei can project a gridmark; onsets never do. With these classic assumptions about the representation of stress the problem disappears. It just does not make sense to move stress onto a syllable containing a complex onset, because, after stress shift, the complex onset is still not licensed by stress (= the gridmarks). Gemination, however, does make sense, because after gemination the head of the onset does get licensed by the gridmarks, as I show in (5). We can conclude, then, that it is possible to solve the To-many-solutions problem by taking the representation of stress seriously.

(1) - Remarks: Go=Gothic, OS=Old Saxon, OE=Old English, OHG=OldHigh German;
- the glide was dropped at a later stage in time (except in OS);
- the dot indicates the division between syllables;
- <q> in Gothic represents /kw/;

Glide in the Onset

sat.jan *Go.*	settian *OS*	settan *OE*	'to set'
kun.jis *Go.*	kunnies *OS*	cynnes *OE*	'race' (gen.)
hal.ja *Go.*	hellia *OS*	helle *OE*	'hell'
naqaþs *Go.*	nackot *OHG*		'naked'

Liquid in the Onset

ep.le *ON*	æppel *OE*		'apple'

(2) */r/ did not lengthen*

far.jan *Go.*	ferian *OE, OS*	ferien, feren *OHG*	'to go by boat'

Voiced obstruents did not lengthen before a liquid

ligrV *Go.*	leger *OE*, legar *OHG*	'bed'
fuglV *Go.*	fugol *OE*, fogal *OHG*	'bird'

Voiced obstruents did lengthen before a glide

bid.jan *Go.*	biddian *OS*	biddan *OE*	'to ask for'

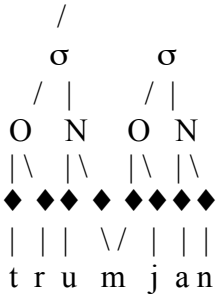
(3) *An alternation in Old English*

trymede *OE* 'strengthen, 1sg. pret. ind.'
trymman *OE* 'strengthen, inf.'

An alternation in Middle Dutch (Van Bree 1987:227)

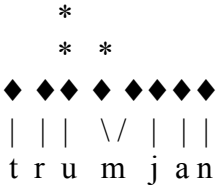
legghen	'to lay, inf.'
legghe	1sg. pres. ind.
leghet	3sg.
legghen	1pl.

(4)



- stress licenses the head of the complex onset (both /t/ in /tr/ and /m/ in /mj/)
- the onset licenses the /m/ in the coda

(5)



- the stress dimension
- /m/ in coda is licensed by gridmark
- /tr/ is (strictly speaking) not licensed; this explains why stress cannot move onto a syllable with a complex onset.