An analogue of the curve complex for Garside groups

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Abstract: Garside groups are a family of groups with particularly nice algorithmic properties, containing in particular all Artin groups of spherical type. The most famous examples are the braid groups. In this talk, I will present a simple construction which associates to every Garside group G a locally infinite, delta-hyperbolic graph on which G acts; we call it the "additional length complex." I will show that these complexes share important features with curve complexes – in fact, the additional length complex of the braid group B_n is conjectured to be quasi-isometric to the curve complex of the n-times punctured disk. Our construction has the potential to be adapted to many other contexts. (Joint work with Matthieu Calvez.)