# BILIMITS ARE BIFINAL OBJECTS

ANDREA GAGNA
(JOINT WORK WITH YONATAN HARPAZ & EDOARDO LANARI)

Quite recently two papers by clingman and Moser made their appearance in the literature, namely [1] and [2], in which they investigate whether the well-known result that limits are terminal cones extends to the 2-dimensional framework. The first one proves that the answer is negative, *i.e.* terminal cones are no longer enough to capture the correct universal property, no matter what flavour of slice category one uses. In the second paper, the authors leverage on results from double-category theory to show that being terminal still captures the notion of limit, provided one is willing to work with an alternative 2-category than that of cones, there denoted by $\mathbf{mor}(F)$ for a given diagram $F$.

In this talk, I will insist on keeping the category of cones as the object of interest, but claiming that the notion of "terminality" is not the correct one to consider (hence the no-go theorem of [1]). Instead, I will introduce the notion of bifinal object and contractions and give a first example of how they arise naturally from the (lax) slice 2-fibration classified by the representable 2-functor of a 2-category. Then I will characterize (lax) bilimits as bifinal objects in the 2-category of cones.

## References

1. Tslil Clingman and Lyne Moser, *2-limits and 2-terminal objects are too different*, arXiv:2004.01313, 2020, preprint.
2. ———, *Bi-initial objects and bi-representations are not so different*, arXiv:2009.05545, 2020, preprint.

Institute of Mathematics, Czech Academy of Sciences