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Reply to “comment on ‘The Mayonnaise Effect’”

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Recently I described how the structuring of a liquid caused by the addition of solutes causes the viscosity to increase according to a Vogel-Fulcher-Tammann type expression.¹ The rapid viscosity increase as a function of concentration can be understood in terms of a jamming transition at a critical concentration. This effect was referred to as “the Mayonnaise Effect” (see Figure 1). In the comment by Wessling,² it is pointed out that mayonnaise is an emulsion and not a solution. It is true that solutions are at equilibrium whereas emulsions such as mayonnaise are not. However, consistent with the comment by Wessling, emulsions do attain their high viscosity because of the jamming (or gel formation) of a three-dimensional network of irregularly sized droplets. This can be seen clearly in figures 1 and 2 of the comment.



Figure 1. *The large viscosity of concentrated solutions is caused by the Mayonnaise Effect.¹*

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Notes

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2. Wessling, B. Comment on “The Mayonnaise Effect”. *J. Phys. Chem. Lett.* submitted.