Disclaimer: *Below you find some example questions, which should help you prepare for the exam. However, note that the actual questions at the exam can be very different and can cover all material presented in the lecture!*

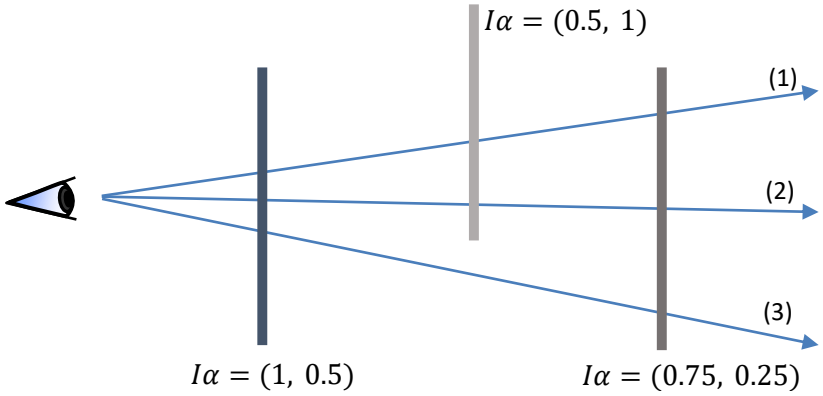
Volume Rendering

a) Name an algorithm commonly used in *indirect volume visualization*.

Why is it considered to be "indirect" compared to "direct" volume rendering?

b) Which optical/visual properties are assigned by a transfer function in volume rendering?

c) A scene consisting of 3 objects (vertical lines) with different intensities (I) and opacities (α) is shown. The α-value (second component) represents the object's opacity, where 0 = ´completely transparent´ and 1 = ´completely opaque´. The 3 objects are ordered as shown. For the three rays starting at the viewpoint, determine the intensity that is seen along these rays using 1) front-to-back **α-compositing** for the upper ray, 2) the compositing scheme **Average** for the middle ray, and 3) the compositing scheme **Maximum** for the lower ray. Specify exactly how the intensities are combined in either case.



d) Light/color has been emitted at a point along the viewing ray. How is it diminished (due to absorption) in a homogeneous, semi-transparent medium? Draw a typical curve.

e) How do you get values along the viewing ray (from volume data)?

f) Which compositing schemes do you know (for combining values along the viewing ray)?