SmokeSNET Model

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1 Current Attributes

As it stands, nodes have the following attributes: Edges are directed and their weight is a probability,

Name	Type	Represents
isSmoker	Boolean	True if they're a smoker, false otherwise
willpower	Double	A probability representing willpower, 0 being of strong willpower
health	Double	A value between 0 and 1 for health, where 1 is perfect health
smokedPerDay	Integer	The number of cigarettes smoked per day
givingUp	Boolean	True if they're giving up, false otherwise
stepsSinceGiveUp	Integer	The number of simulation steps since giving up
sociable	Double	A probability representing how sociable someone is, with 1 being very sociable

representing their influence. Nodes can also be constrained to a maximum number of in-edges, i.e. nodes which influence them. Within each simulation step, the following happens:

1. The local neighbourhood within three incoming hops is acquired for the given node. Influence between the nodes is calculated as the maximum influence across all possible connections of the two nodes, where influence over multiple hops is the product of the influence of each hop. For example, in Fig. 1, the influence of *Node C* on the *Current Node* is the maxiumum of $0.8 * 0.8$ and 0.1, the maxiumum value here is 0.64 for *Node C* to *D* to *Current*.

This is a work in progress - I'm planning to add the following attributes over the next few days:

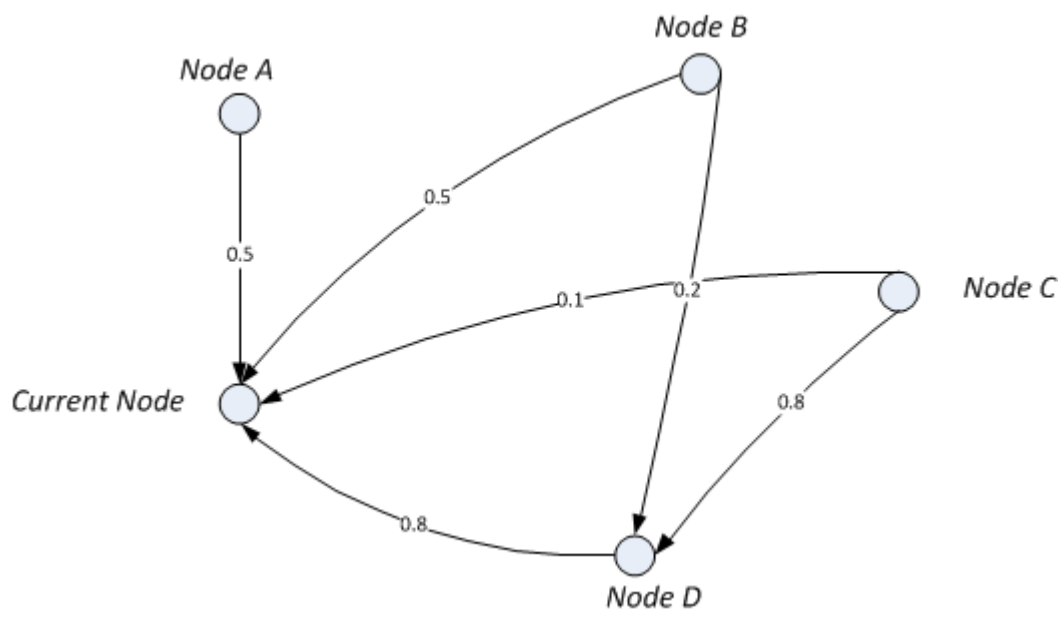- A representation of addiction - probably a value between 0 and 1, that can be decremented as

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Figure 1: Network Diagram