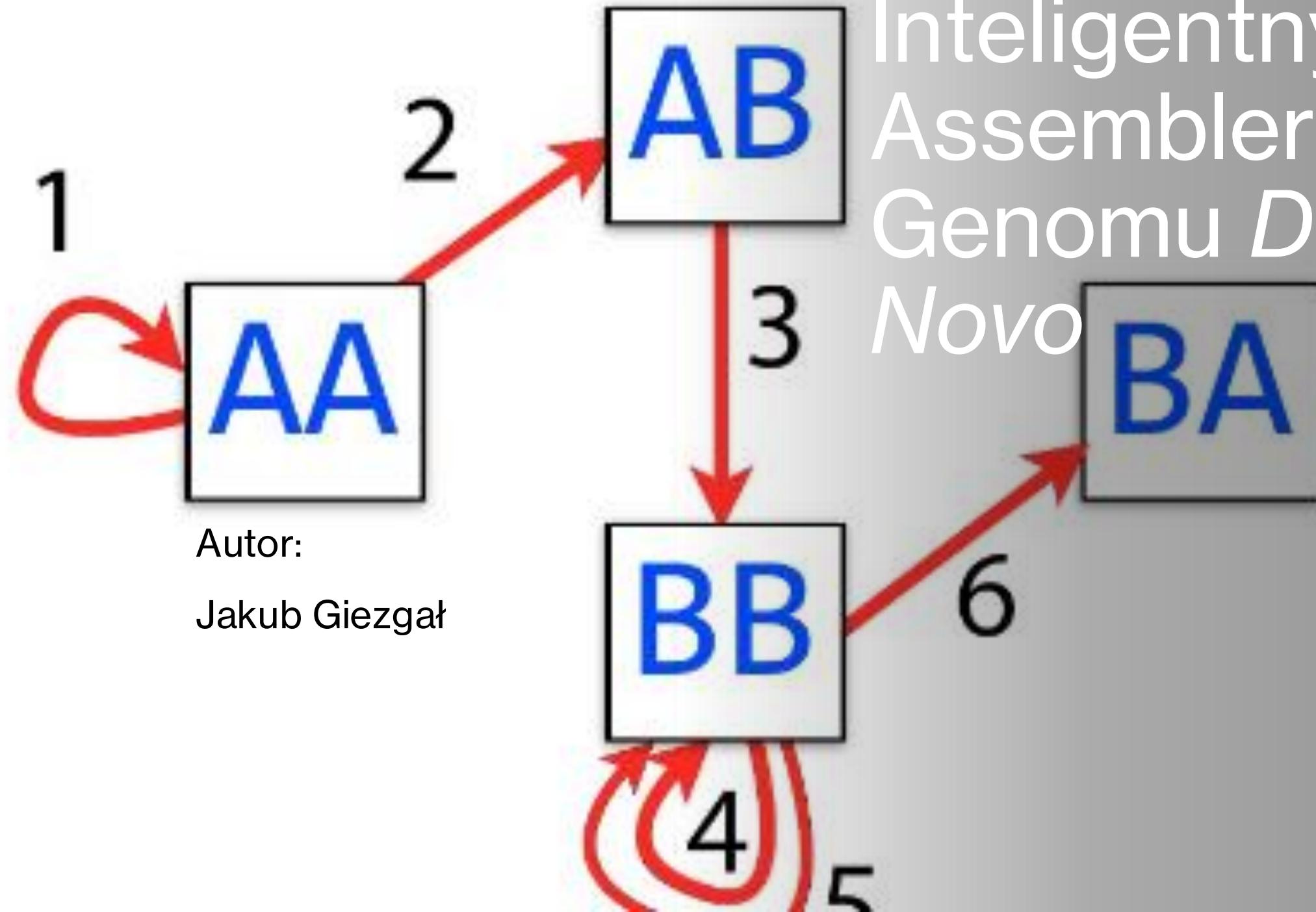
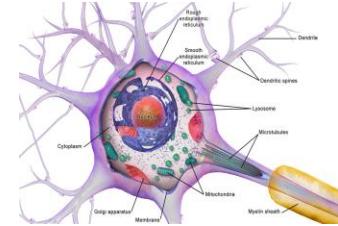


Inteligentny Assembler Genomu *De Novo*



Inteligenty <=> Auto-Tuning



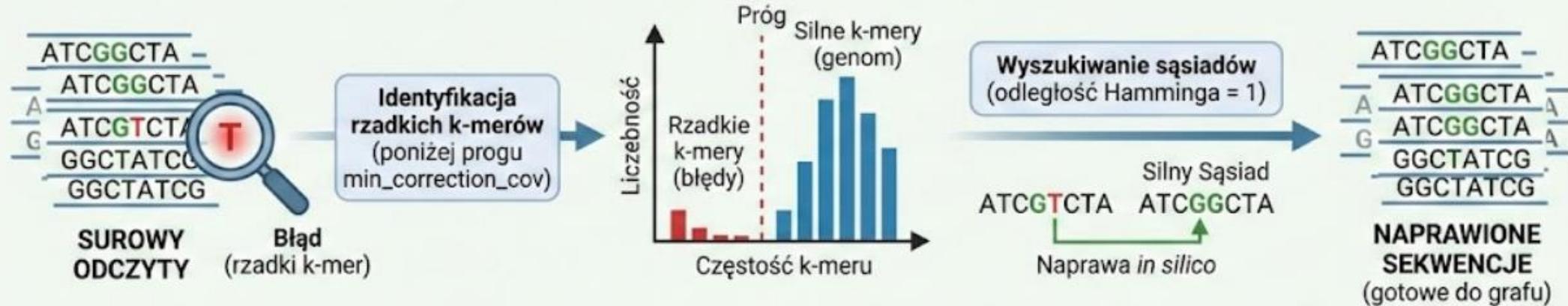
Condition	Mode	Parameters	Goal
$\text{EstCov} \geq 7.5$	STABLE HIGH	K=21, MinCov=2	High precision for dense data. Noise filtering.
$4.0 \leq \text{EstCov} < 7.5$ ($\text{ErrorRatio} < 25\%$)	PRECISION RESCUE	K=21, MinCov=1	Preserves sparse reads, large K for precision.
$4.0 \leq \text{Cov} < 7.5$ ($\text{ErrorRatio} \geq 25\%$)	AGGRESSIVE FILTER	K=17, MinCov=2	Smaller K increases overlap probability, MinCov=2 removes noise.
$\text{Cov} < 4.0$	DESPERATE	K=15, MinCov=1	Extremely low coverage. Desperate attempt to assemble anything.

+1 for extending by an edge.
+ Edge Weight (prefers paths with high coverage).
-5 penalty for entering a Dead-End.
-0.5 penalty for ambiguity (branching).

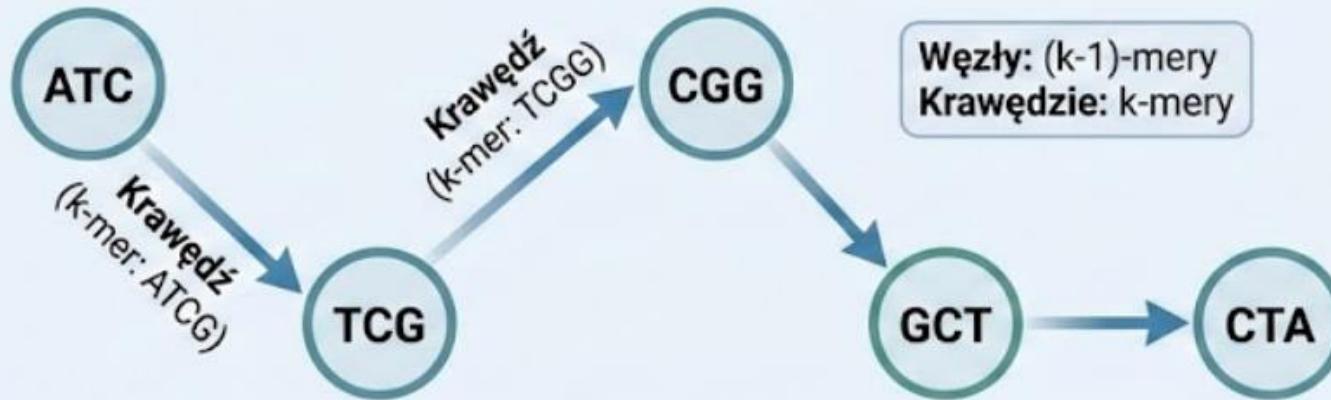
Przed rozpoczęciem asemblacji *de novo*, program wykonuje szybki scan odczytów używając małych k-merów o długości 15. Dzięki temu wyliczane są dwie metryki od których zależy zastosowana strategia:

- **EstCov:** Mediana wystąpień k-merów występujących więcej niż jeden raz.
- **ErrorRatio:** Stosunek unikalnych k-merów do unikalnych sekwencji.

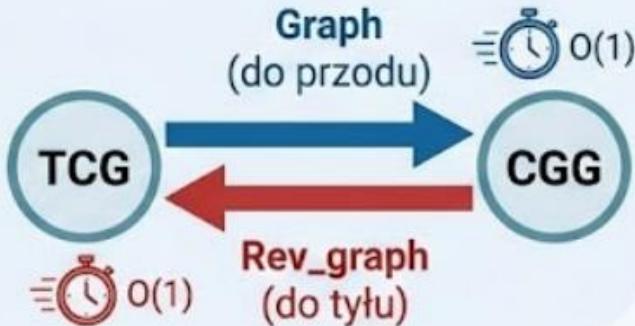
SPECTRAL ERROR CORRECTION



STRUKTURA GRAFU DE BRUIJNA

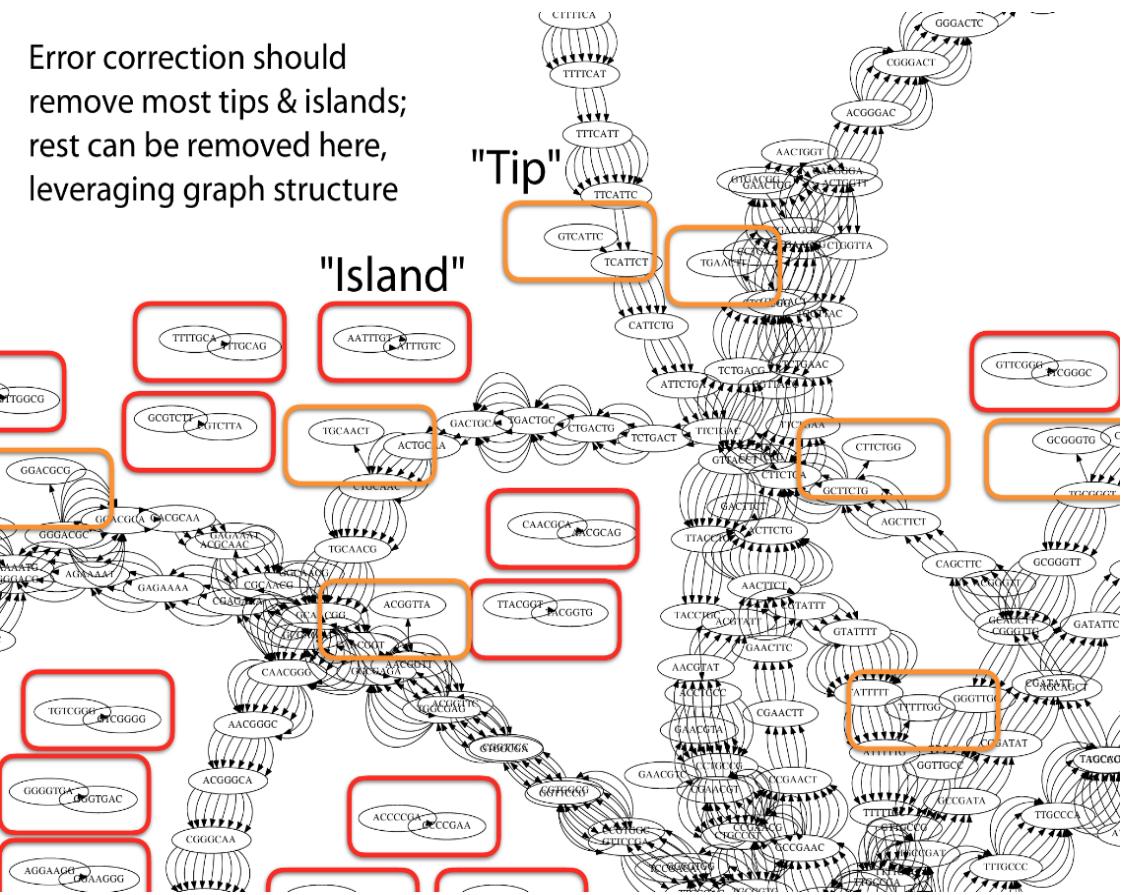


Podwójna struktura (O(1) nawigacja)

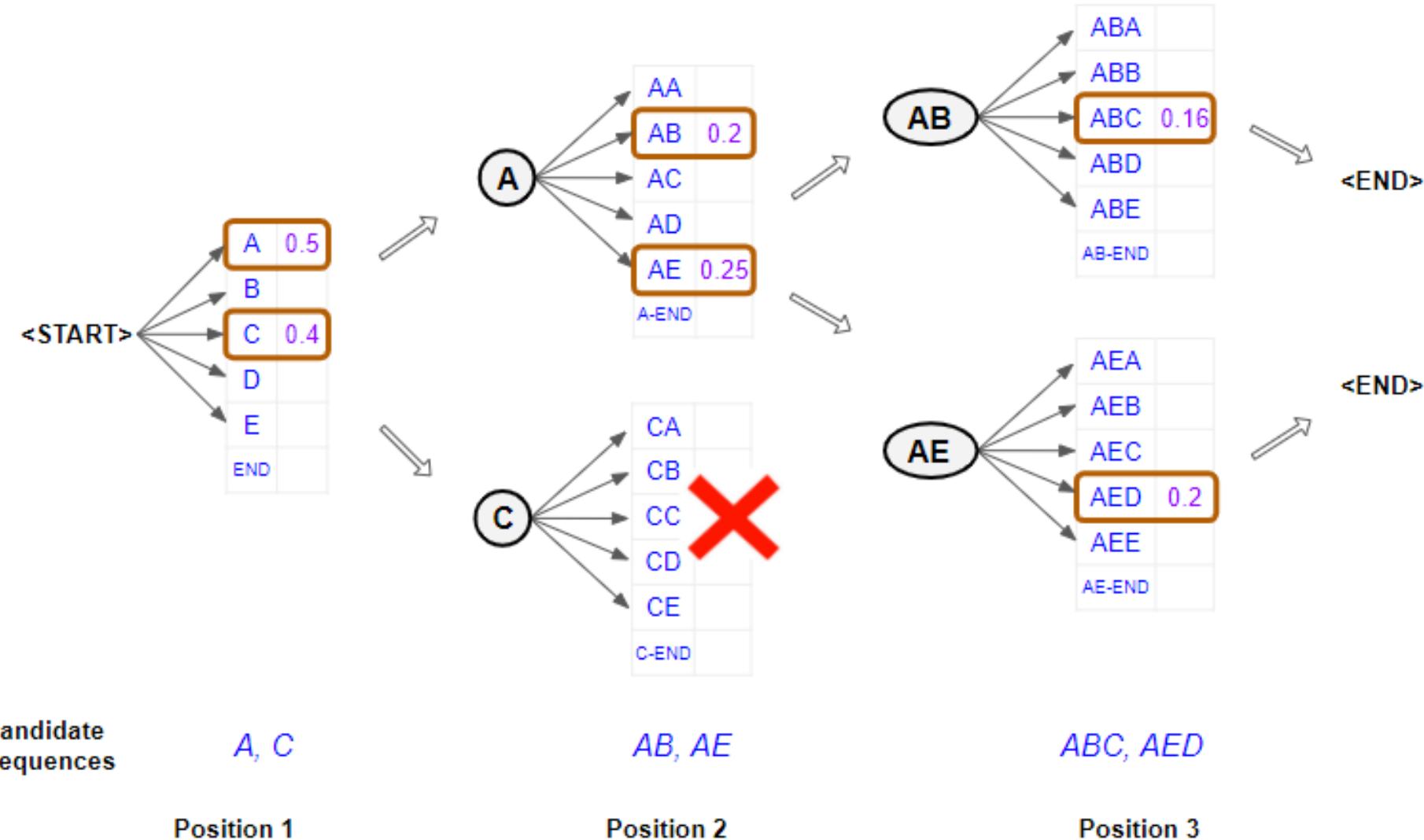


Error Correction

Error correction should remove most tips & islands; rest can be removed here, leveraging graph structure



Beam Search > Greedy





Grid Search Is All You Need!

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