**The phonetic motivation of stop assibilation**

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**Definition of stop aspiration**

processes whereby (alveolar and dental) stops become sibilant affricates or sibilant fricatives before high (front) vowels

**Examples of affrication**

- spirantization: $t \rightarrow [\text{+strident, +continuant}] / \text{i} /$ (Finnish)
- affrication: $t \rightarrow [\text{+strident, +continuant}] / \text{i} /$ (Ancient Greek)
- affrication: $t \rightarrow [\text{+strident, +continuant}] / \text{i} /$ (Korean)
- affrication: $t \rightarrow [\text{+strident, +continuant}] / \text{i} /$ (Quebec French)
- affrication: $t \rightarrow [\text{+strident, +continuant}] / \text{i} /$ (Sorbian)
- affrication: $t \rightarrow [\text{+strident, +continuant}] / \text{i} /$ (West Futuna-Arjawa)

**Possible reasons for stop assimilation (based on the findings by Clements 1999 and Kim 2001)**

- the trigger is some subset of the high front vowels ($i$, $y$, $j$)
- the output is a sibilant (either an affricate or a fricative)
- the trigger is to the right of the target

**Hall & Hamann (to appear)**

- Assibilation is triggered by $i / j /$: Quebec French, Kpando dialect of Gbe
- Assibilation is triggered by $i / j /$: Romanian, West Slavic, Latvian
- Assibilation is triggered only by $i / j /$: untested
- $i / j /$ and $d / t /$ assimilate: Quebec French, Kpando dialect of Gbe
- Only $i / j /$ assimilates: Dutch, Late Latin
- Only $d / t /$ assimilates: untested

**Influence of the preceding vowel**

- $i / j /$ assimilation in the context of $/i$/ (stages of assimilation: glide, vowel, nonassimilation).

**Influence of the following vowel**

- $i / j /$ assimilation in the context of $/u$/ (stages of assimilation: vowel, glide, nonassimilation).

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**Assibilation**

- $i / j /$ assimilation implies the assimilation in $/i$/.
- $i / j /$ assimilation in $/i$/ implies the assimilation in $/i$/.
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**Possible reasons for the difference between $i / j /$:**

1. $j / i /$ is articulated with a longer and/or more narrow area of constriction than $i / j /$. (Thus it takes longer for the oral pressure to be released when a sibilant is followed by a $j / i /$ then followed by an $i / j /$)

**Possible reasons for the difference between $i / j /$:**

2. $j / i /$ is articulated with a longer and/or more narrow area of constriction than $i / j /$. (The oral pressure is released momentarily when a voiced sound is followed by a sibilant, but not followed by a $i / j /$.

**Possible reasons for the difference between $i / j /$:**

3. $j / i /$ is articulated with a longer and/or more narrow area of constriction than $i / j /$. (The oral pressure is released momentarily when a voiced sound is followed by a sibilant, but not followed by a $i / j /$.

The phonetic studies support the hypotheses:

- Assibilation hierarchy: $j / i /$ > $i / j /$ > $d / t /$ (following from the differences in friction length).
- Differences in amount of airflow confirm the hierarchy obtained acoustically.

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**Posterior palatalization**

$x$-ray tracings for Polish (Wierzchowska 1971) and for German (Wängler 1958)

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**References**


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**Conclusion**

### Assimilation hierarchy:

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**Assibilation**

- $i / j /$ is articulated with a longer and/or more narrow area of constriction than $i / j /$. (This is assumed by Maddieson & Emmorey (1985), who infer a narrower constriction for $j / i /$ than for $i / j /$.)

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**Appendix**

- $i / j /$ is articulated with a longer and/or more narrow area of constriction than $i / j /$. (The oral pressure is released momentarily when a voiced sound is followed by a sibilant, but not followed by a $i / j /$.

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**Supplementary material**

- X-ray tracings for Polish (Wierzchowska 1971) and for German (Wängler 1958)

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**Data analysis**

- $i / j /$ assimilation in the context of $/i$/ (stages of assimilation: glide, vowel, nonassimilation).

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- $i / j /$ assimilation in the context of $/a$/ (stages of assimilation: glide, vowel, nonassimilation).

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